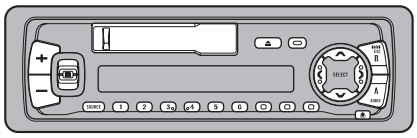
Service Manual

KEH-P490/X1M/UC



ORDER NO.
CRT2398

MULTI-CD CONTROL HIGH POWER CASSETTE PLAYER WITH FM/AM TUNER

KEH-P490 X1M/UC
KEH-P4900 X1M/UC
KEH-P4950 X1M/ES

● **This service manual should be used together with the following manual(s):**

Model No.	Order No.	Mech. Module	Remarks
CX-1011	CRT2406	3L	Cassette Mech. Module:Mech.Description and Greasing, Disassembly, Adjustment

● **This service manual does not describe the CD test mode.**
For the operations in the CD test mode, refer to the CD player's Service manual.

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PIONEER CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153-8654, Japan
PIONEER ELECTRONICS SERVICE INC. P.O.Box 1760, Long Beach, CA 90801-1760 U.S.A.
PIONEER ELECTRONIC [EUROPE] N.V. Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE.LTD. 253 Alexandra Road, #04-01, Singapore 159936

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K-ZZB. OCT. 1999 Printed in Japan

1. SAFETY INFORMATION

CAUTION

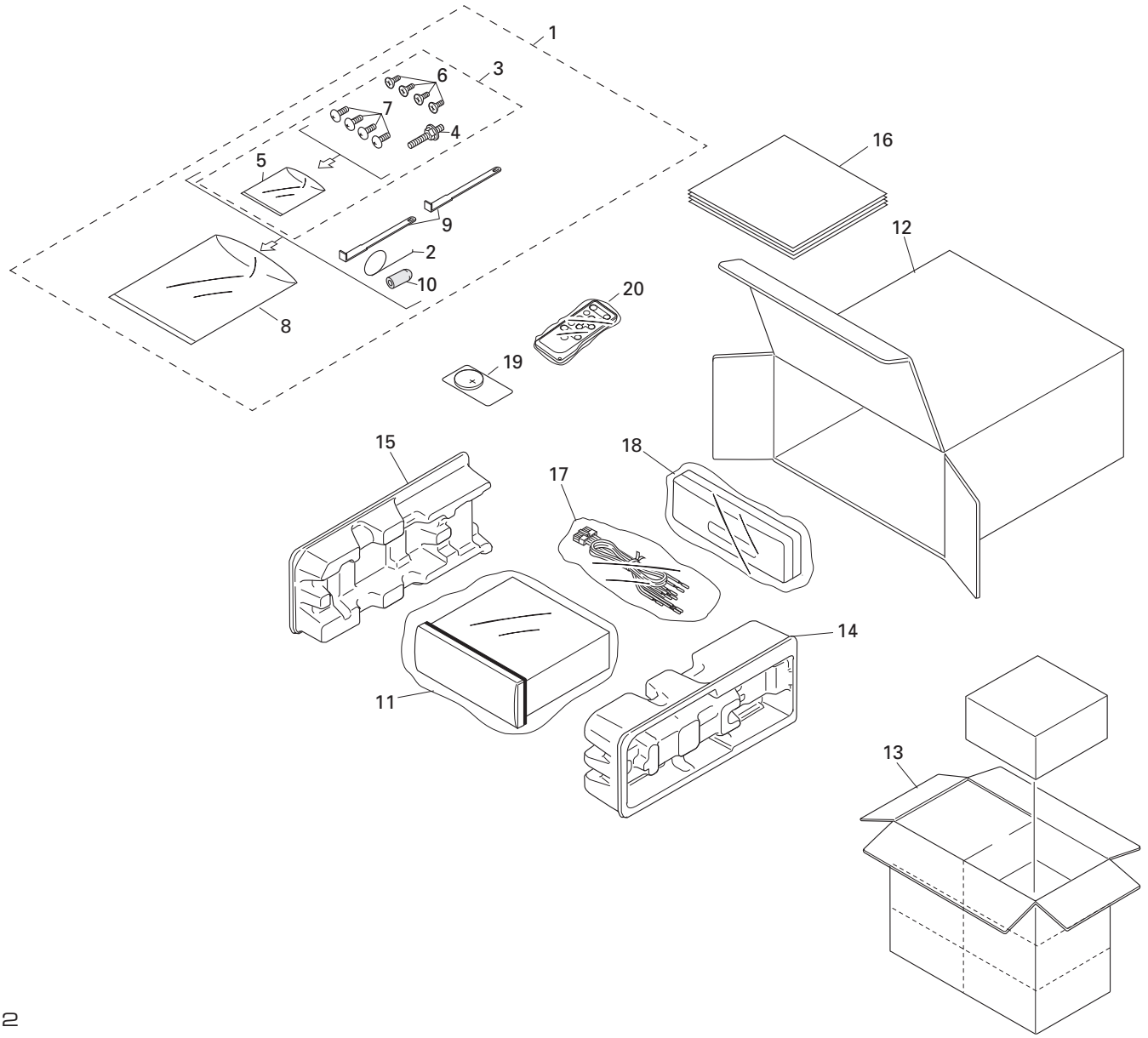
This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer.
Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty.
If you are not qualified to perform the repair of this product properly and safely; you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.
Health & Safety Code Section 25249.6 - Proposition 65

2. EXPLODED VIEWS AND PARTS LIST

2.1 PACKING



NOTE:

- Parts marked by "*" are generally unavailable because they are not in our Master Spare Parts List.
- Screws adjacent to ∇ mark on the product are used for disassembly.

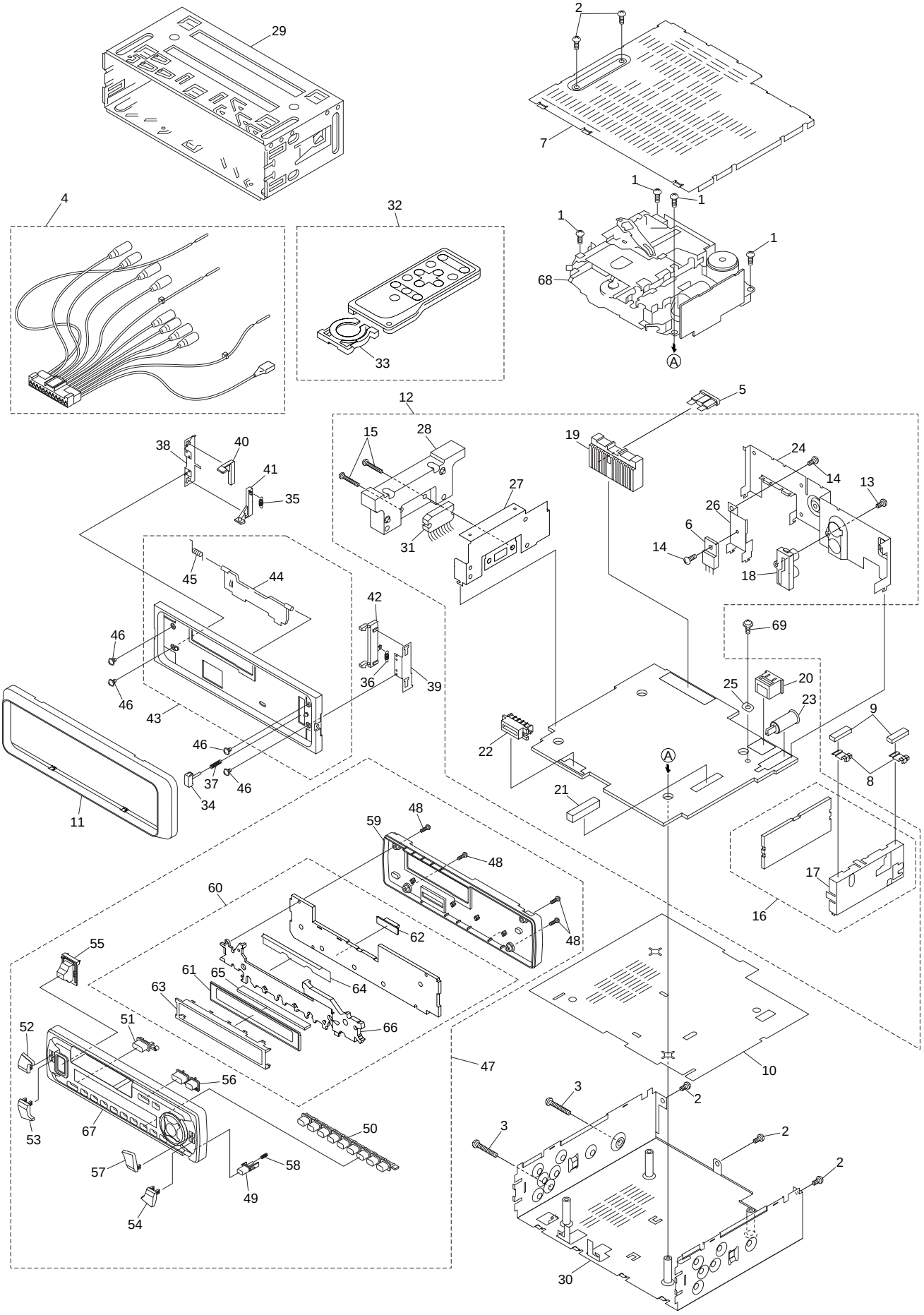
● PACKING SECTION PARTS LIST

Mark	No.	Description	Part No. KEH-P490/X1M/UC	Part No. KEH-P4900/X1M/UC	Part No. KEH-P4950/X1M/ES
*	1	Accessory Assy	CEA2350	CEA2350	CEA2350
	2	Spring	CBH1650	CBH1650	CBH1650
	3	Screw Assy	CEA2351	CEA2351	CEA2351
	4	Screw	CBA1304	CBA1304	CBA1304
*	5	Polyethylene Bag	CEG-127	CEG-127	CEG-127
	6	Screw	CRZ50P090FMC	CRZ50P090FMC	CRZ50P090FMC
	7	Screw	TRZ50P080FMC	TRZ50P080FMC	TRZ50P080FMC
*	8	Polyethylene Bag	CEG-158	CEG-158	CEG-158
	9	Handle	CNC5395	CNC5395	CNC5395
	10	Bush	CNV3930	CNV3930	CNV3930
	11	Polyethylene Bag	CEG1173	CEG1173	CEG-162
	12	Carton	CHG3893	CHG3889	CHG3890
	13	Contain Box	CHL3893	CHL3889	CHL3890
	14	Protector	CHP2244	CHP2244	CHP2244
	15	Protector	CHP2243	CHP2243	CHP2243
	16-1	Owner's Manual	CRD3090	CRD3088	CRD3083
	16-2	Owner's Manual	Not used	Not used	CRD3084
	16-3	Installation Manual	CRD3091	CRD3089	CRD3085
*	16-4	Warranty Card	CRY1070	CRY1070	Not used
*	16-5	Card	Not used	ARY1048	Not used
	17	Cord assy	CDE6222	CDE6222	CDE6222
	18	Case assy	CXB3520	CXB3520	CXB3520
	19	Battery	CEX1030	Not used	Not used
	20	Remote Control Unit	CXB4284	Not used	Not used

● Owner's Manual, Installation Manual

Model	Part No.	Language
KEH-P490/X1M/UC	CRD3090	English, French
	CRD3091	English, French
KEH-P4900/X1M/UC	CRD3088	English, French, Spanish
	CRD3089	English, French, Spanish
KEH-P4950/X1M/ES	CRD3083	English, Spanish, Portuguese(B)
	CRD3084	Chinese, Arabic
	CRD3085	English, Spanish, Portuguese(B), Chinese, Arabic

2.2 EXTERIOR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2
30

(1) EXTERIOR SECTION PARTS LIST

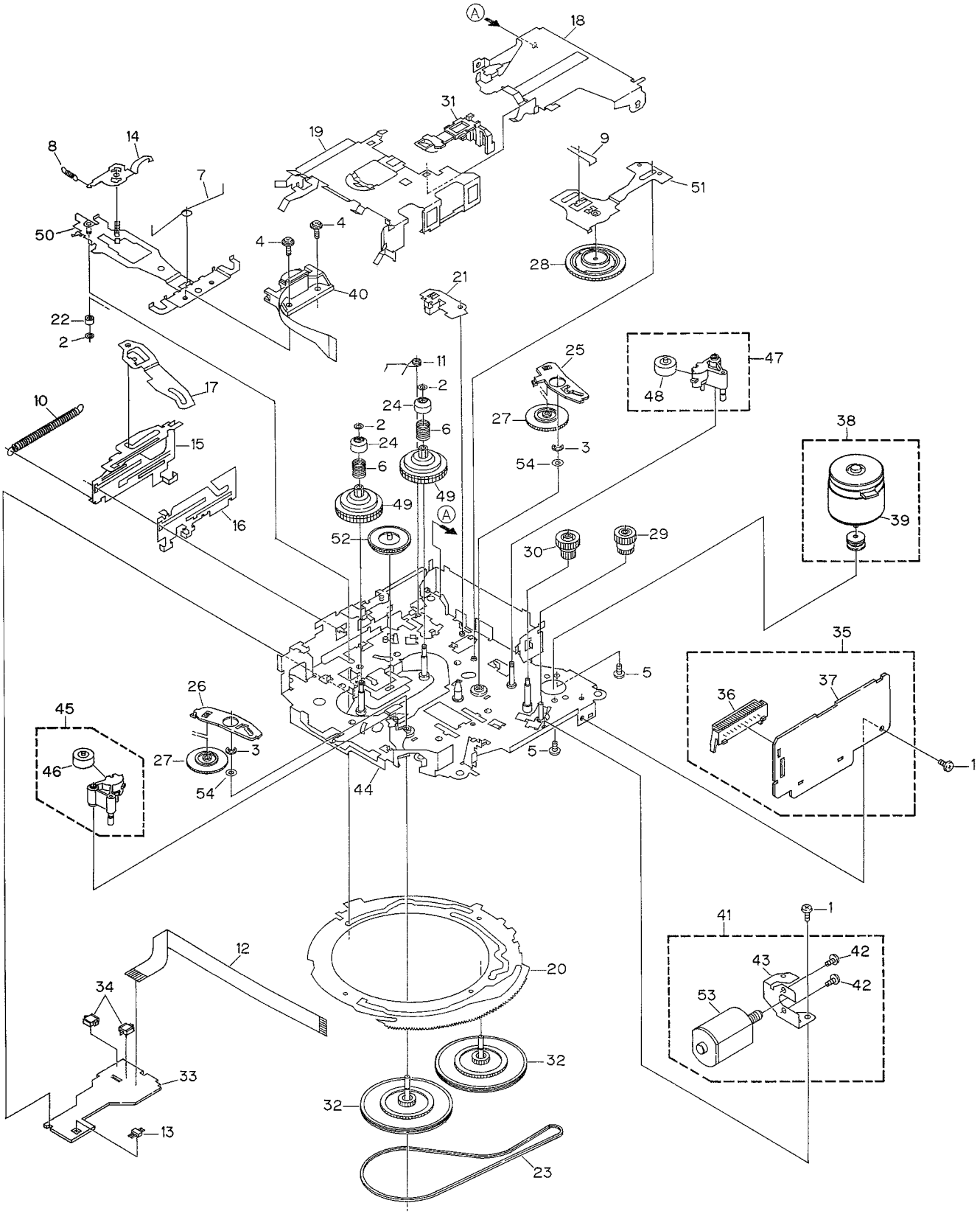
Mark	No.	Description	Part No.
	1	Screw	BSZ26P050FMC
	2	Screw	BSZ30P050FMC
	3	Screw	BSZ30P200FMC
	4	Cord Assy	CDE6222
	5	Fuse(10A)	CEK1136
	6	Transistor(Q904)	2SD2396
	7	Case	CNB2350
	8	Holder	CNC5704
	9	Cushion	CNM5210
	10	Insulator	CNM5963
	11	Panel	CNS5132
	12	Tuner Amp Unit	See Contrast table(2)
	13	Screw	BPZ26P080FMC
	14	Screw	BSZ26P080FMC
	15	Screw	BSZ26P160FMC
	16	FM/AM Tuner Unit	See Contrast table(2)
	17	Holder	CNC6554
	18	Pin Jack(CN301)	CKB1035
	19	Plug(CN603)	CKM1270
	20	Connector(CN701)	CKS3408
	21	Connector(CN602)	CKS3568
	22	Connector(CN601)	CKS3581
	23	Antenna Jack(CN402)	CKX1056
	24	Panel	CNB2343
	25	Holder	CNC5399
	26	Holder	CNC6845
	27	Holder	CNC7996
	28	Heat Sink	CNR1505
	29	Holder Unit	CXB2687
	30	Chassis Unit	CXB3012
	31	IC(IC302)	TDA7384
	32	Remote Control Unit	See Contrast table(2)
	33	Cover	See Contrast table(2)
	34	Button	CAC4836
	35	Spring	CBH1834
	36	Spring	CBH1835
	37	Spring	CBH2182
	38	Bracket	CNC6135
	39	Bracket	CNC6791
	40	Arm	CNV4692
	41	Arm	CNV4693
	42	Arm	CNV4728
	43	Panel Unit	CXB4927
	44	Door	CAT2109
	45	Spring	CBH1838
	46	Screw	IMS20P030FZK
	47	Detach Grille Assy	See Contrast table(2)
	48	Screw	BPZ20P100FZK
	49	Button(DETACH)	CAC5789
	50	Button(1-6)	CAC6239
	51	Button(SOURCE)	CAC6241
	52	Button(+)	CAC6242
	53	Button(-)	CAC6243
	54	Button(AUDIO)	CAC6245
	55	Button(EQ)	CAC6247
	56	Button(EJECT)	CAC6268
	57	Button(BAND)	CAC6269
	58	Spring	CBH2103
	59	Cover	CNS5635
	60	Keyboard Unit	See Contrast table(2)
	61	LCD(LCD1901)	CAW1563
	62	Connector(CN1901)	CKS3580
	63	Holder	CNC8485
	64	Sheet	CNM6453
	65	Connector	CNV5914
	66	Lighting Conductor	CNV5915
	67	Grille Sub Assy	See Contrast table(2)
	68	Cassette Mechanism Module	EXK4000
	69	Screw	ISS26P055FUC

(2) CONTRAST TABLE

KEH-P490/X1M/UC, KEH-P4900/X1M/UC and KEH-P4950/X1M/ES are constructed same except for the following:

Mark	No.	Description	Part No.		
			KEH-P490/X1M/UC	KEH-P4900/X1M/UC	KEH-P4950/X1M/ES
	12	Tuner Amp Unit	CWM7021	CWM7021	CWM7025
	16	FM/AM Tuner Unit	CWE1467	CWE1467	CWE1486
	32	Remote Control Unit	CXB4284	Not used	Not used
	33	Cover	CNS4948	Not used	Not used
	47	Detach Grille Assy	CXB5152	CXB4788	CXB4789
	60	Keyboard Unit	CWM7022	CWM7024	CWM7024
	67	Grille Sub Assy	CXB5209	CXB5210	CXB5211

2.3 CASSETTE MECHANISM MODULE

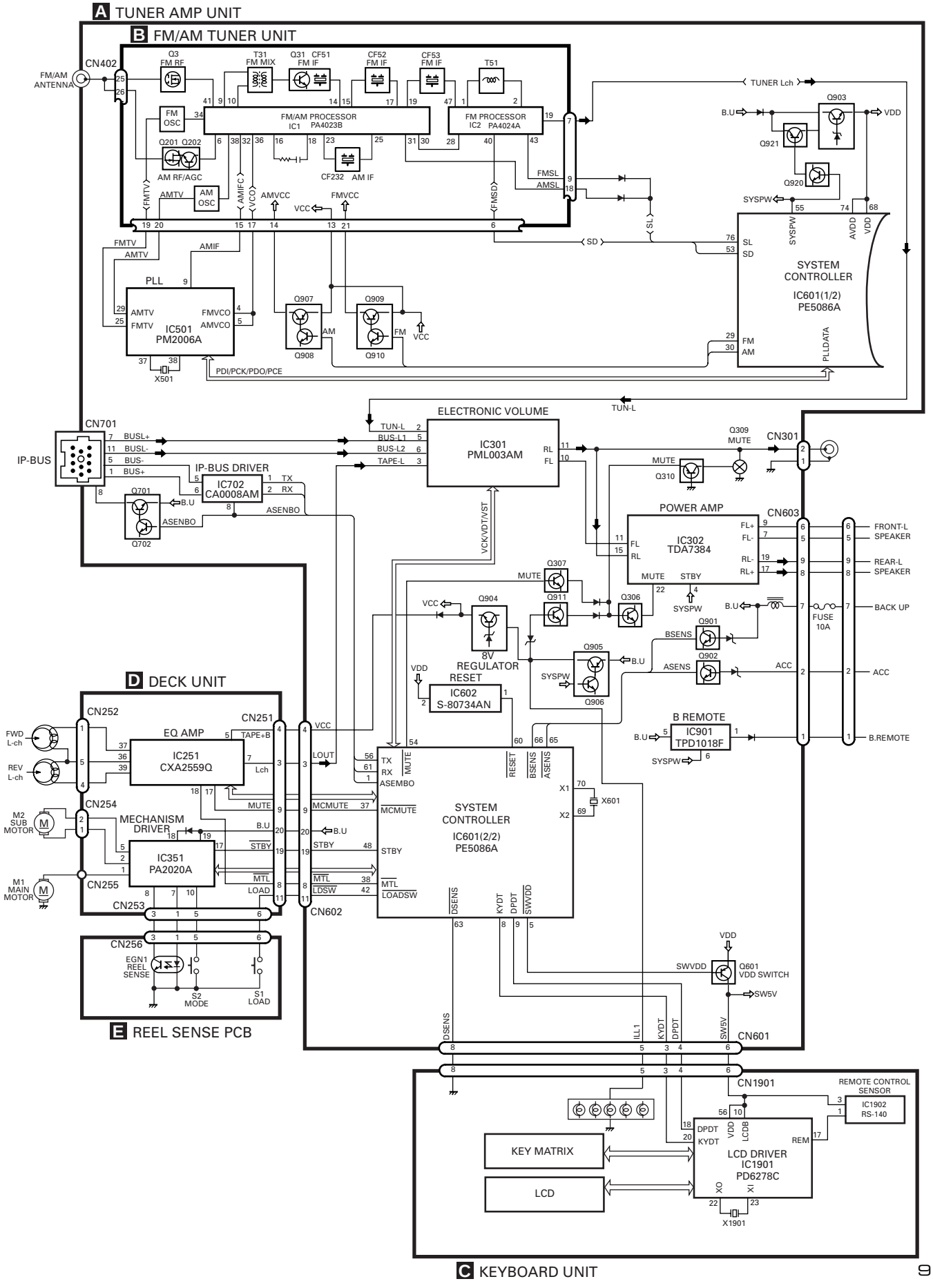


● CASSETTE MECHANISM MODULE SECTION PARTS LIST

Mark No.	Description	Part No.
1	Screw	BSZ20P040FMC
2	Washer	CBF1037
3	Washer	CBG1003
4	Screw	EBA1028
5	Screw	EBA1037
6	Spring	EBH1531
7	Spring	EBH1624
8	Spring	EBH1625
9	Spring	EBH1626
10	Spring	EBH1627
11	Spring	EBH1628
12	Cord	EDD1024
13	Photo-reflector(EGN1)	EGN1004
14	Arm	ENC1526
15	Lever	ENC1530
16	Lever	ENC1531
17	Arm	ENC1532
18	Frame	ENC1533
19	Holder	ENC1534
20	Gear	ENC1535
21	Arm	ENC1536
22	Roller	ENR1040
23	Belt	ENT1027
24	Collar	ENV1508
25	Arm	ENV1539
26	Arm	ENV1540
27	Gear	ENV1544
28	Gear	ENV1547
29	Gear	ENV1548
30	Worm Wheel	ENV1550
31	Lever	ENV1551
32	Flywheel	ENV1554
33	Gathering PCB	ENX1054
34	Switch(S1,S2)	ESG1007
35	Deck Unit	EWM1023
36	Plug(CN251)	CKS3540
37	Gathering PCB	ENX1053
38	Motor Unit(M1)	EXA1491
39	Motor	EXM1028
40	Head Assy(HD1)	EXA1506
41	Motor Unit(M2)	EXA1580
42	Screw	BMZ20P022FMC
43	Bracket	ENC1528
44	Chassis Unit	EXA1582
45	Pinch Holder Unit	EXA1584
46	Pinch Roller	ENV1518
47	Pinch Holder Unit	EXA1583
48	Pinch Roller	ENV1518
49	Reel Unit	EXA1585
50	Head Base Unit	EXA1586
51	Lever Unit	EXA1587
52	Gear Unit	EXA1588
53	Motor Unit(Service)	EXX1055
54	Washer	HBF-179

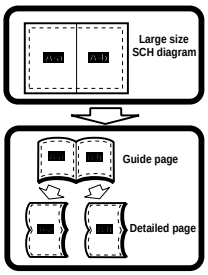
3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

3.1 BLOCK DIAGRAM



3.2 OVERALL CONNECTION DIAGRAM(GUIDE PAGE)

Note: When ordering service parts, be sure to refer to "EXPLODED VIEWS AND PARTS LIST" or "ELECTRICAL PARTS LIST".



A-a

B FM/AM TUNER UNIT

TUN401

FM:-15.5dBs(100%)
AM:-22.0dBs(30%)

CN402

IC501
PLL IC
PM2006A

CSS1474
(7.2MHz)

TAPE:-8.8dBs
FM:+2.6dBs
AM:-1.9dBs
CD:+5.3dBs

TAPE:-9dBs

*1	L401	R405
UC	R39	—
ES	—	51

D DECK UNIT

CN251

CN602

CN601

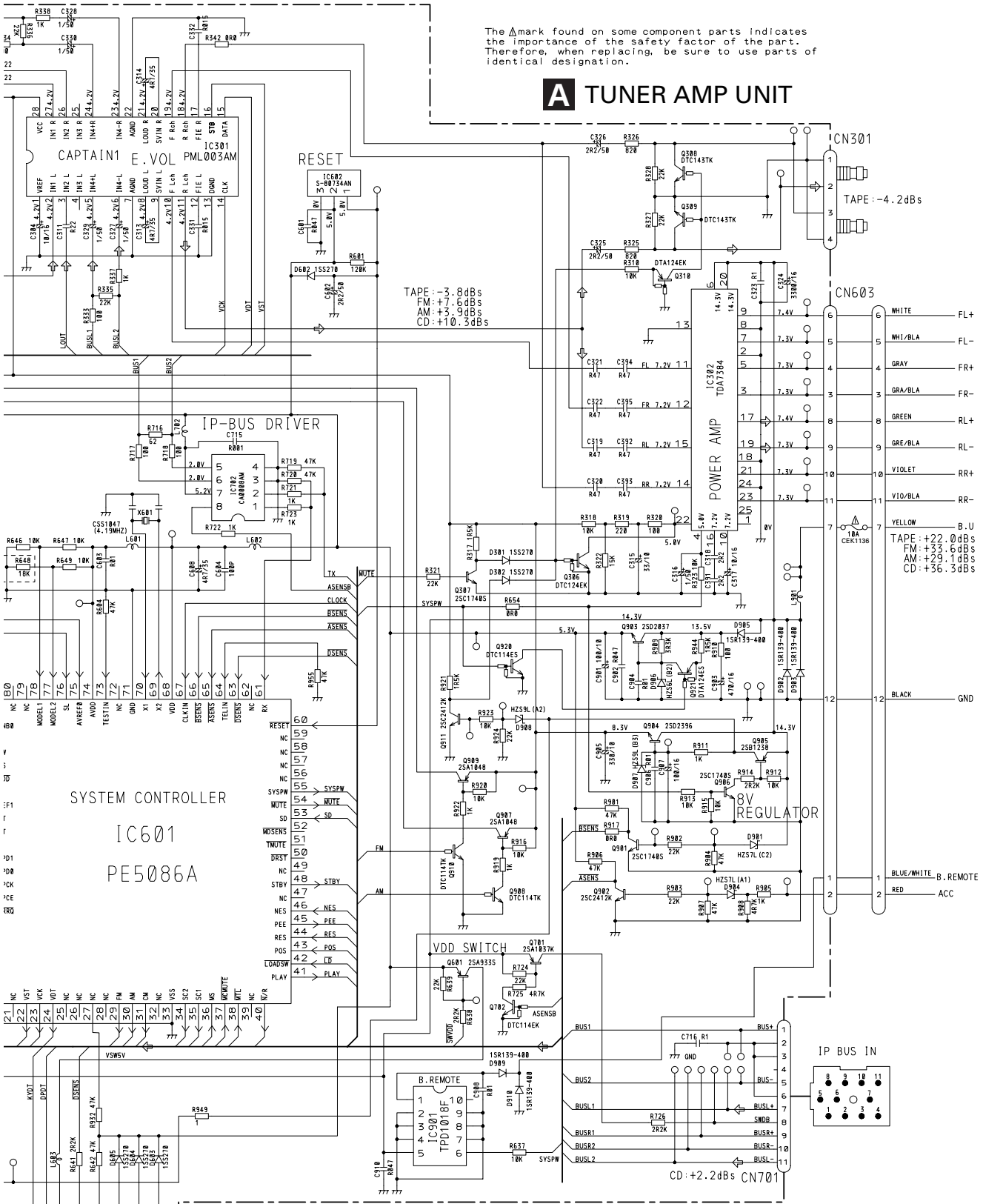
CN1901

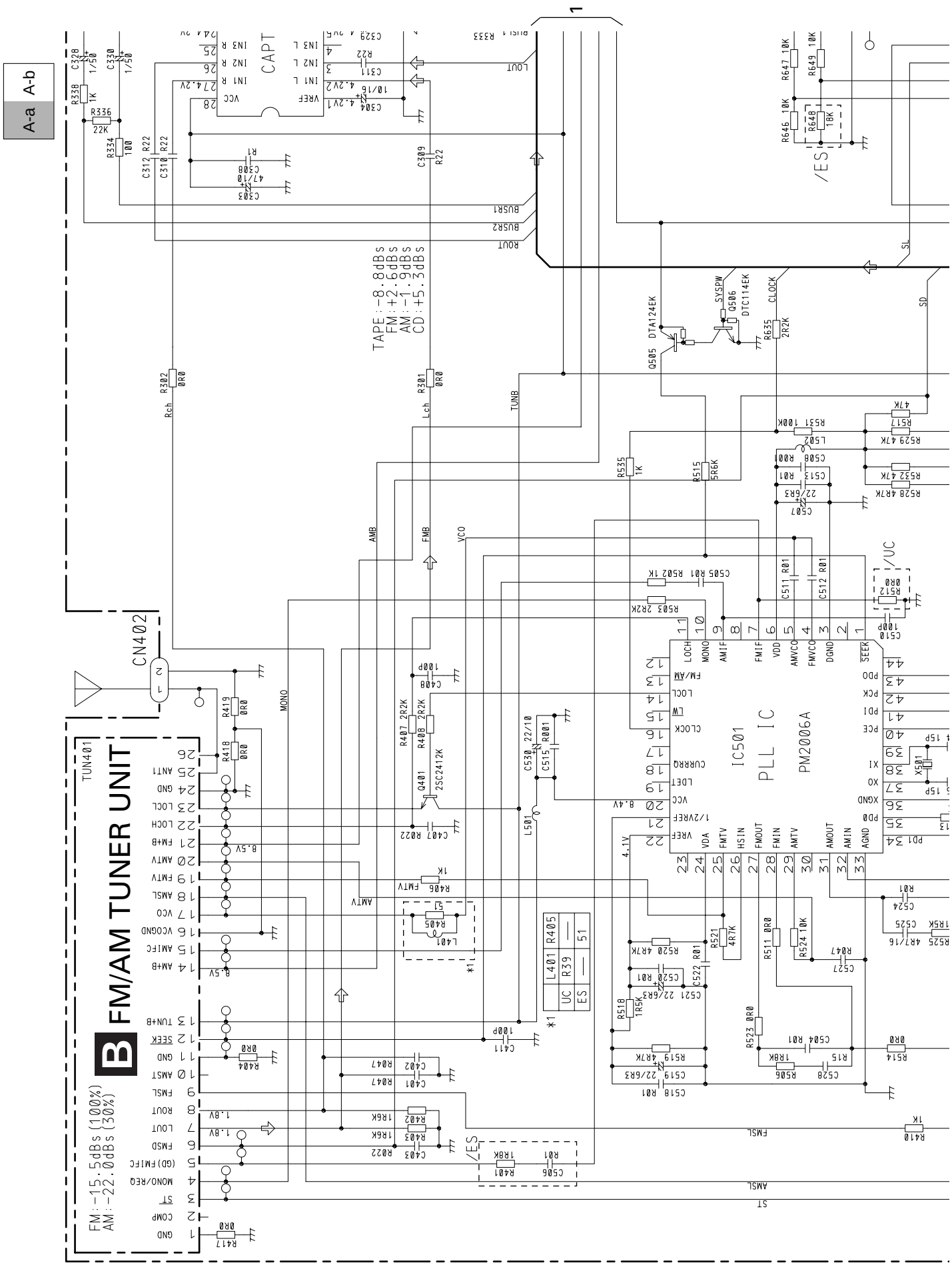
C KEYBOARD UNIT

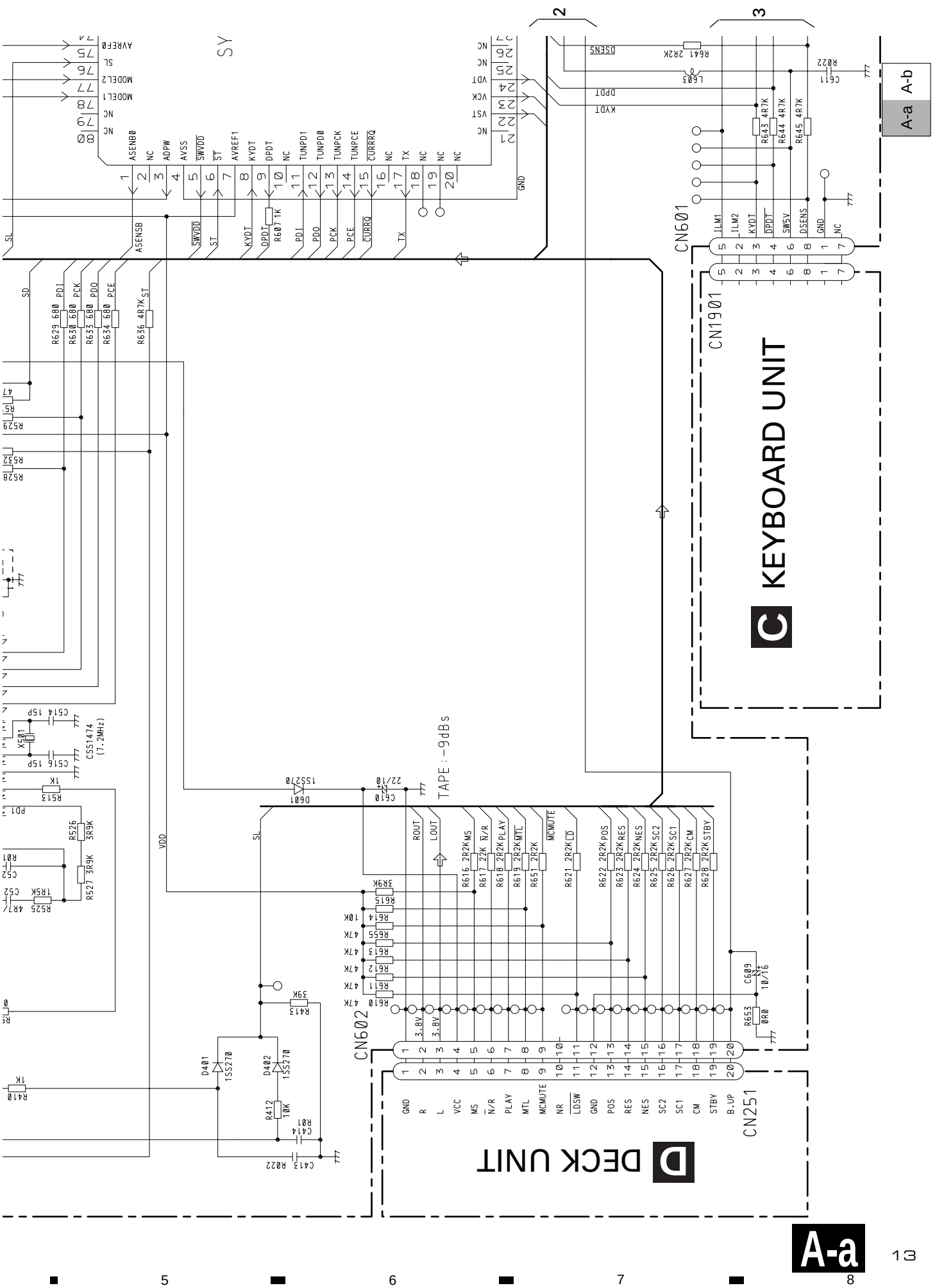
A

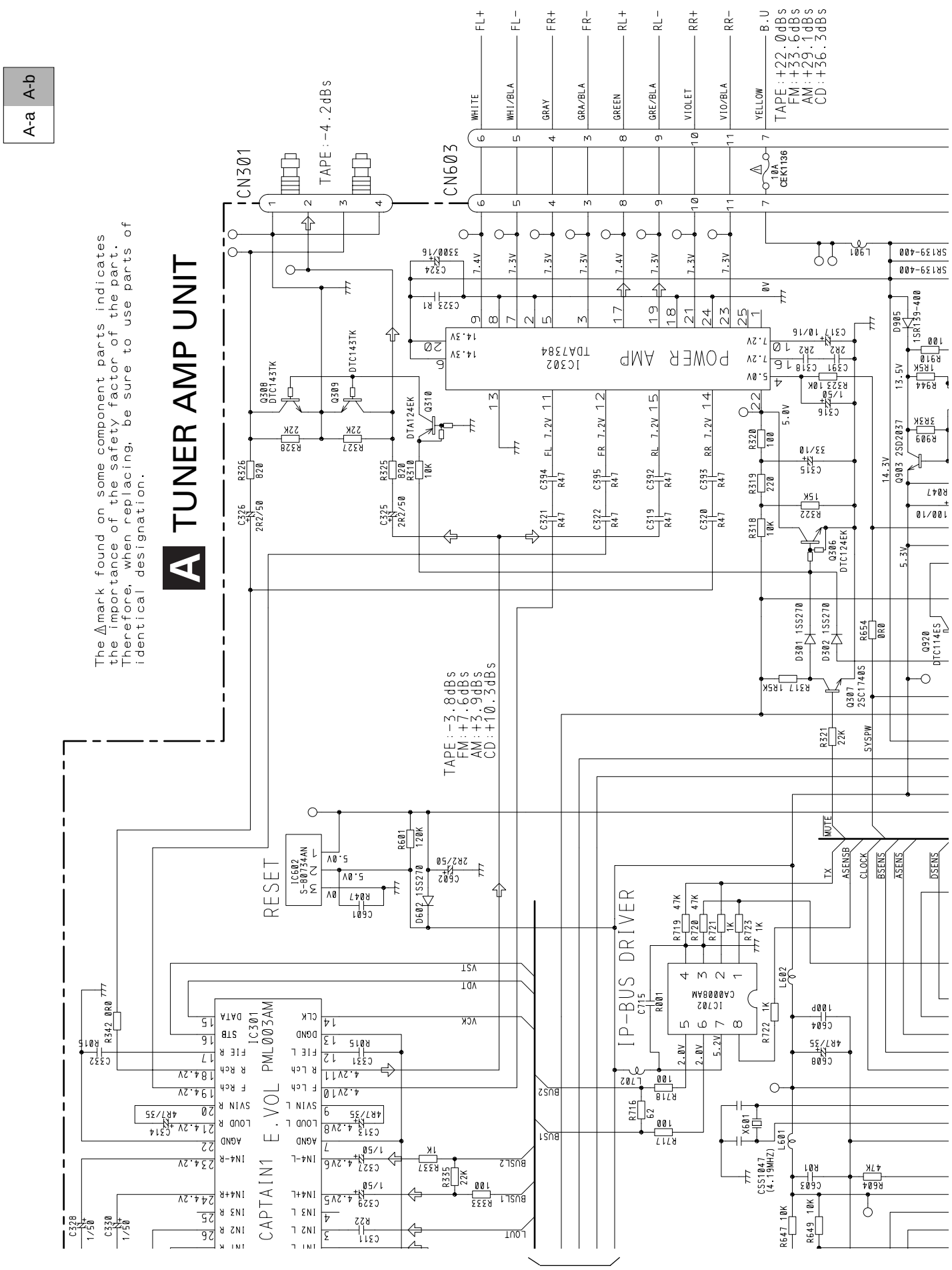
A-b

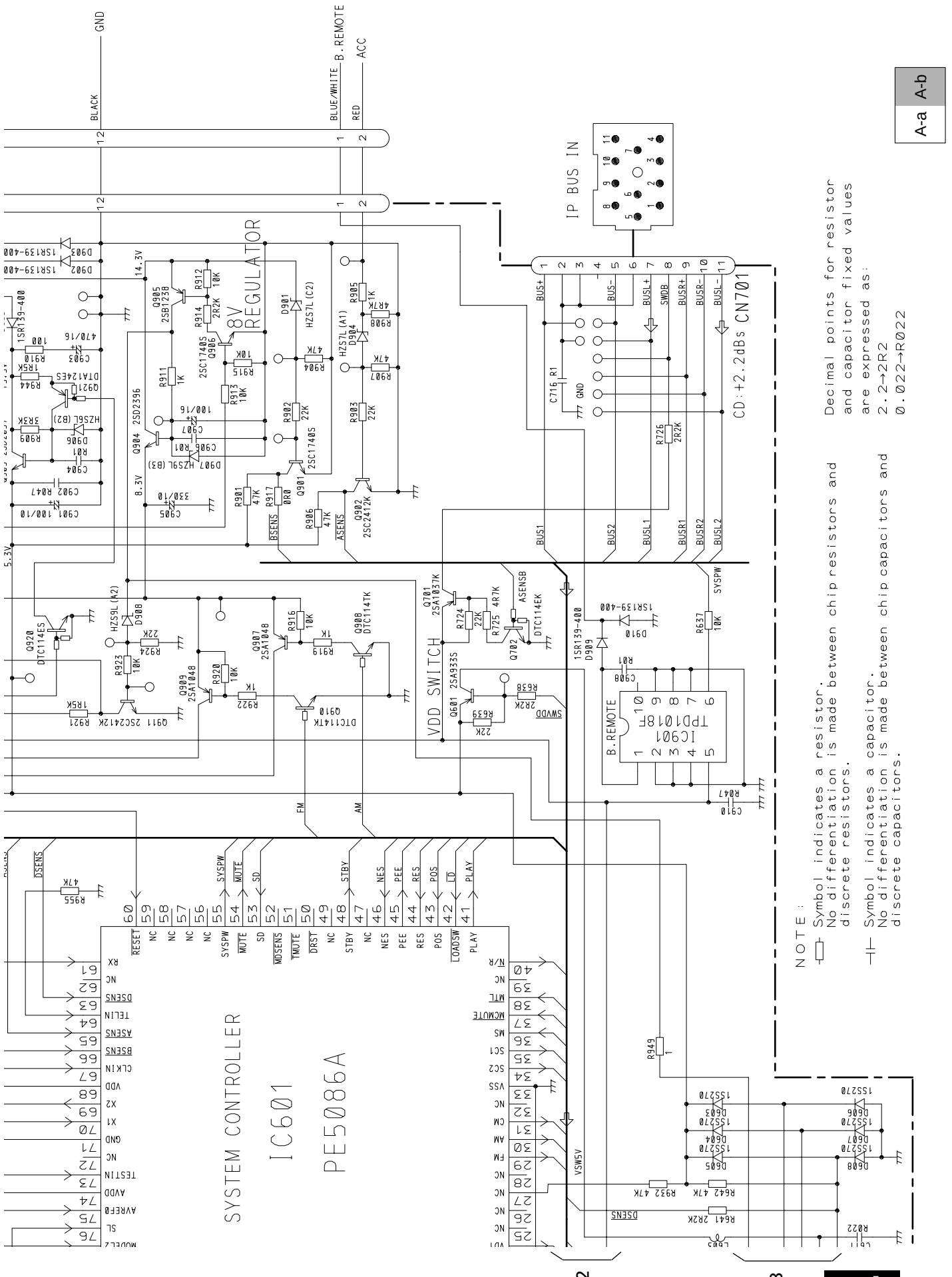
A TUNER AMP UNIT




A-a A-b
B FM/AM TUNER UNIT
TUN401
FM: -15.5dBs (100%)
AM: -22.0dBs (30%)
CN402
IC501 PLL IC PM2006A
CAPT
TAPE: -8.8dBs
FM: +2.6dBs
AM: -1.9dBs
CD: +5.3dBs
/ES
/UC
Rch
Lch
TUNB
AMB
FMB
VCO
MONO
AMTV
FMSL
AMSL
ST
SD
SL
CLOCK
SYSPW
Q505 DTA124EK
Q506 DTC114EK
Q401 2SC2412K
L401 R405 —
UC R39 —
ES — 51
*1
*11


KEYBOARD UNIT
DECK UNIT
CN601
CN1901
CN602
CN251
TAPE:-9dBs
A-a
A-b


A-a A-b
A TUNER AMP UNIT
The △mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
CN301
CN603
TAPE:-4.2dBs
WHITE FL+
WHI/BLA FL-
GRAY FR+
GRA/BLA FR-
GREEN RL+
GRE/BLA RL-
VIOLET RR+
VIO/BLA RR-
YELLOW B.U
TAPE:+22.0dBs
FM:+33.6dBs
AM:+29.1dBs
CD:+36.3dBs
10A CEK1136
POWER AMP IC302 TDA7384
RESET IC602 S-80734AN
IP-BUS DRIVER IC702 CA0008AM
CAPTAIN1 E.VOL PML003AM IC301
TAPE:-3.8dBs
FM:+7.6dBs
AM:+3.9dBs
CD:+10.3dBs
MUTE
TX
ASENSB
CLOCK
BSENS
ASENS
DSENS
SYSPW
VST
VDT
VCK
BUS2
BUS1
LOUT
CSS1047 (4.19MHz)
Q308 DTC143TK
Q309 DTC143TK
Q310 DTA124EK
Q306 DTC124EK
Q307 2SC1740S
Q903 2SD2037
Q920 DTC114ES
D301 1SS270
D302 1SS270
D602 1SS270
D905 1SR139-400
L601
L602
L901

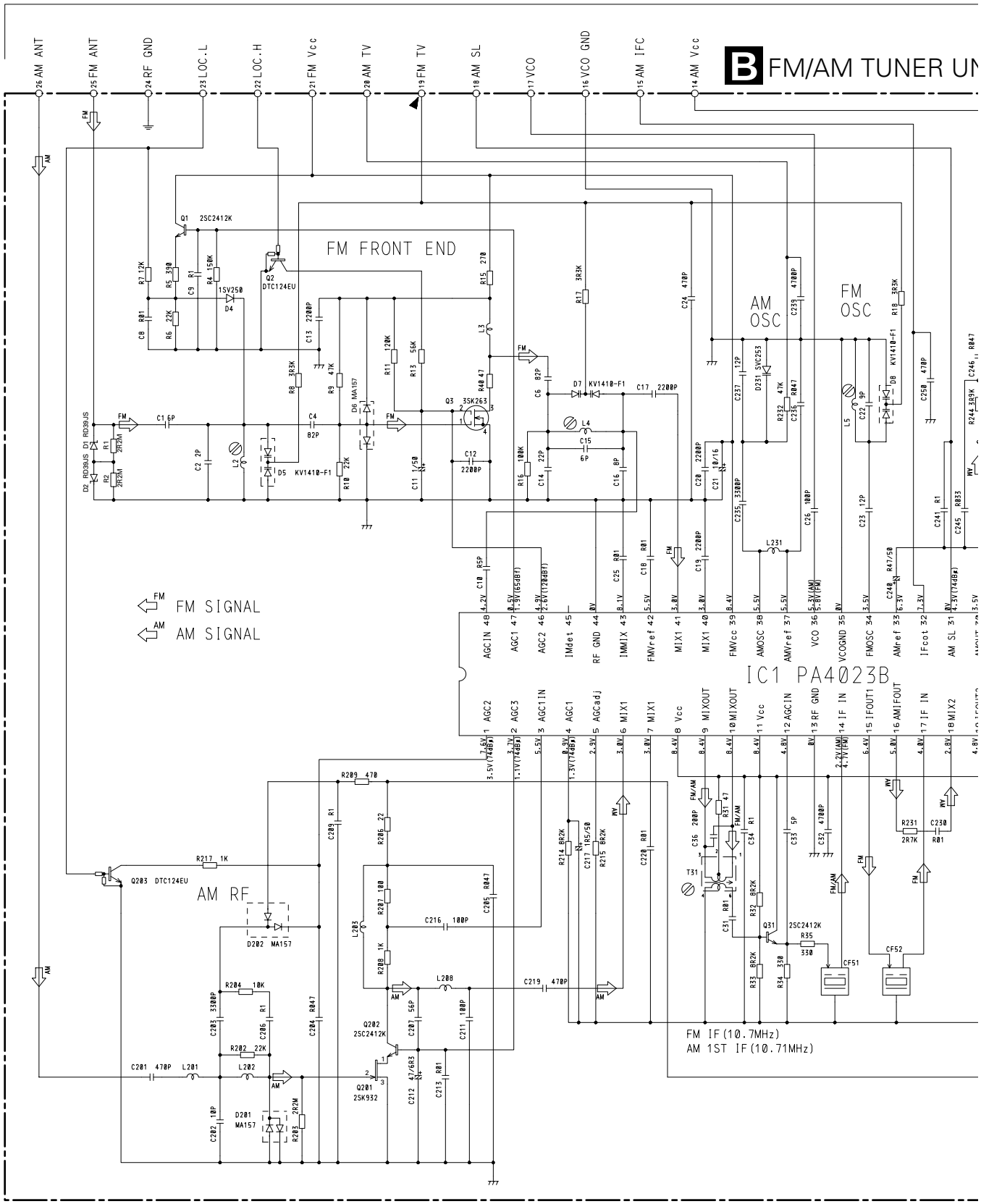

GND
BLACK
B.REMOTE
BLUE/WHITE
ACC
RED
IP BUS IN
CD:+2.2dBs CN701
8V REGULATOR
VDD SWITCH
SYSTEM CONTROLLER
IC601
PE5086A
IC901 TPD1018F
B.REMOTE
FM
AM
NOTE:
Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.
Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.
Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022

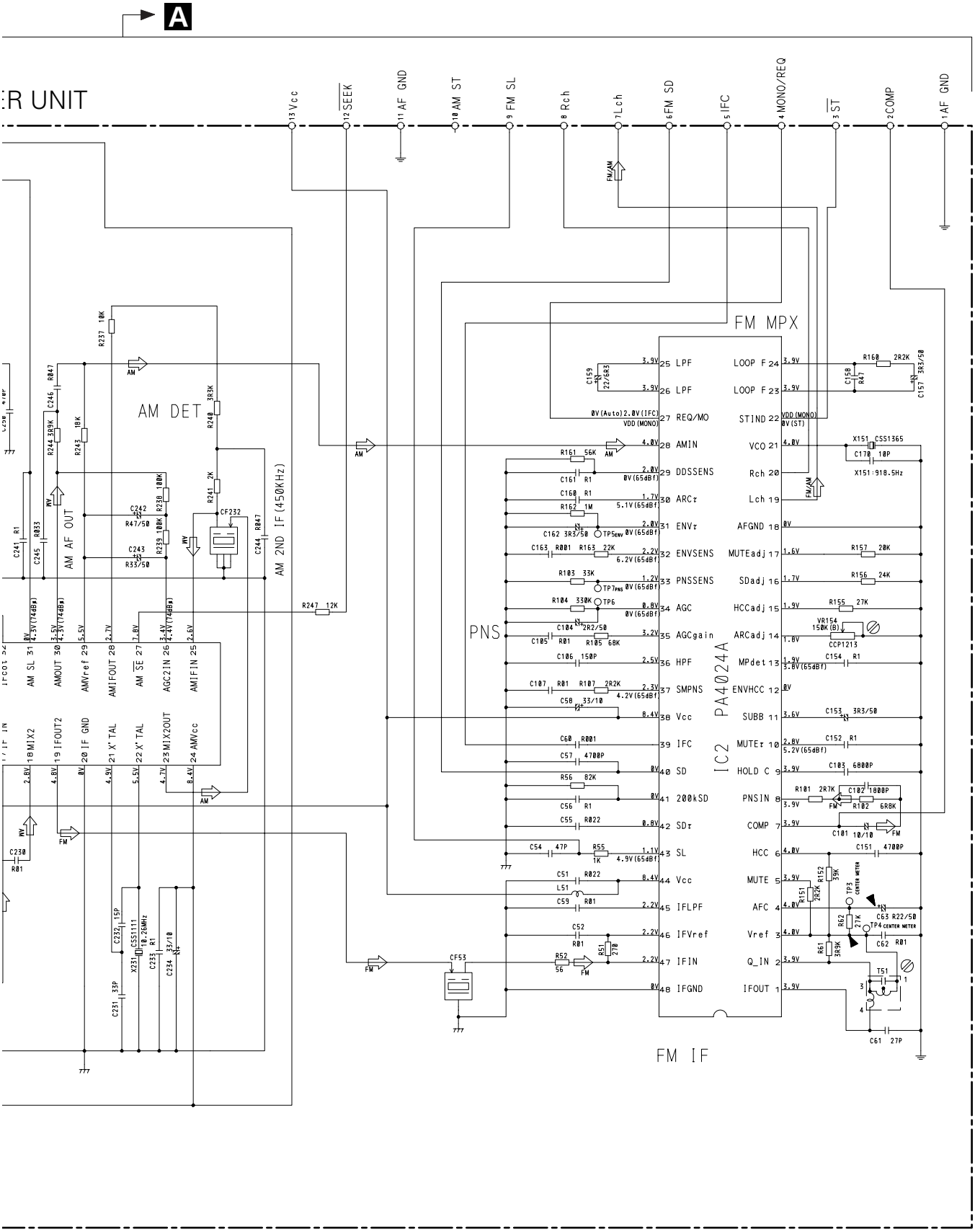
A-a A-b

A-b

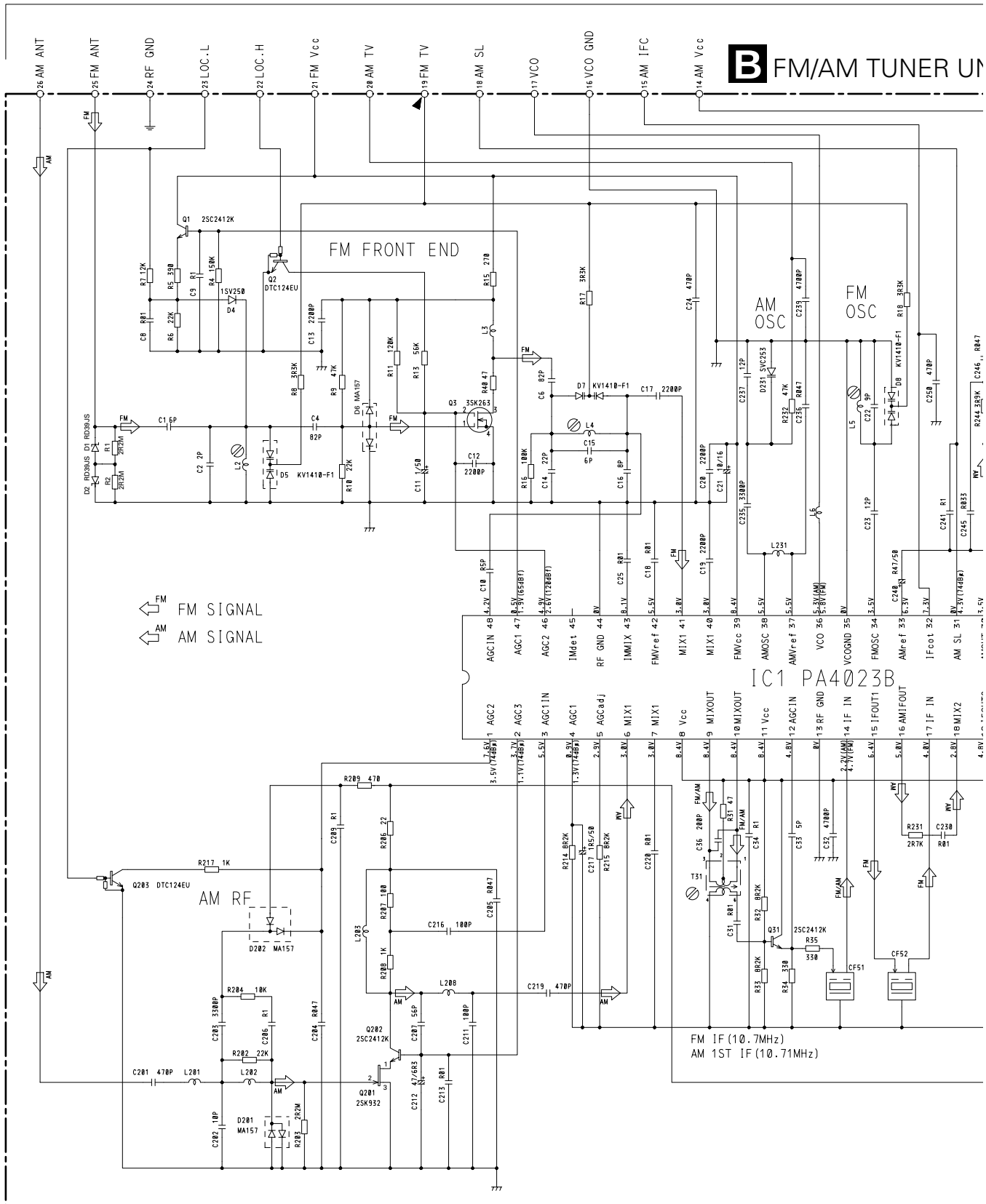
3.3 FM/AM TUNER UNIT

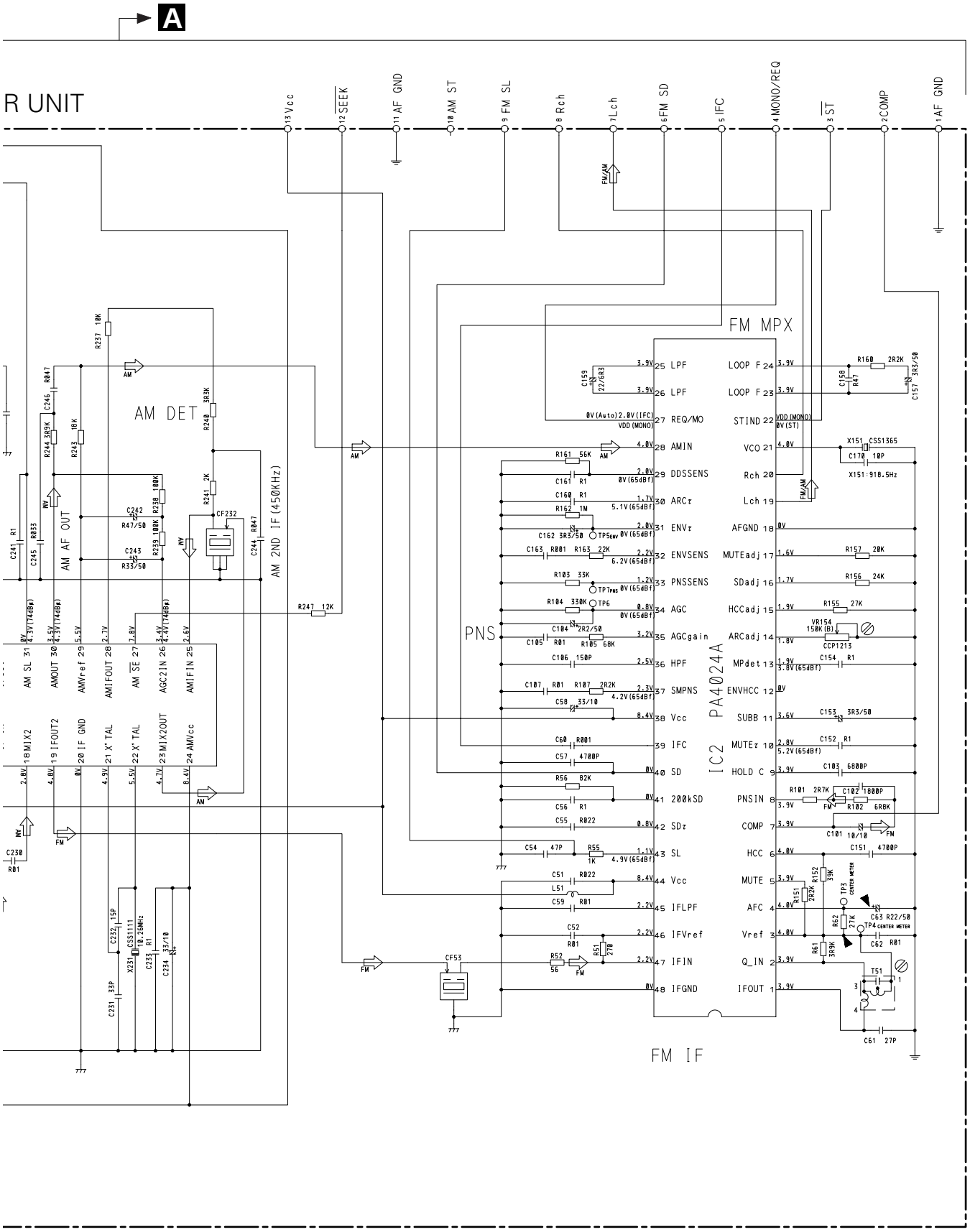
● **CWE1467(KEH-P490/X1M/UC, KEH-P4900/X1M/UC)**



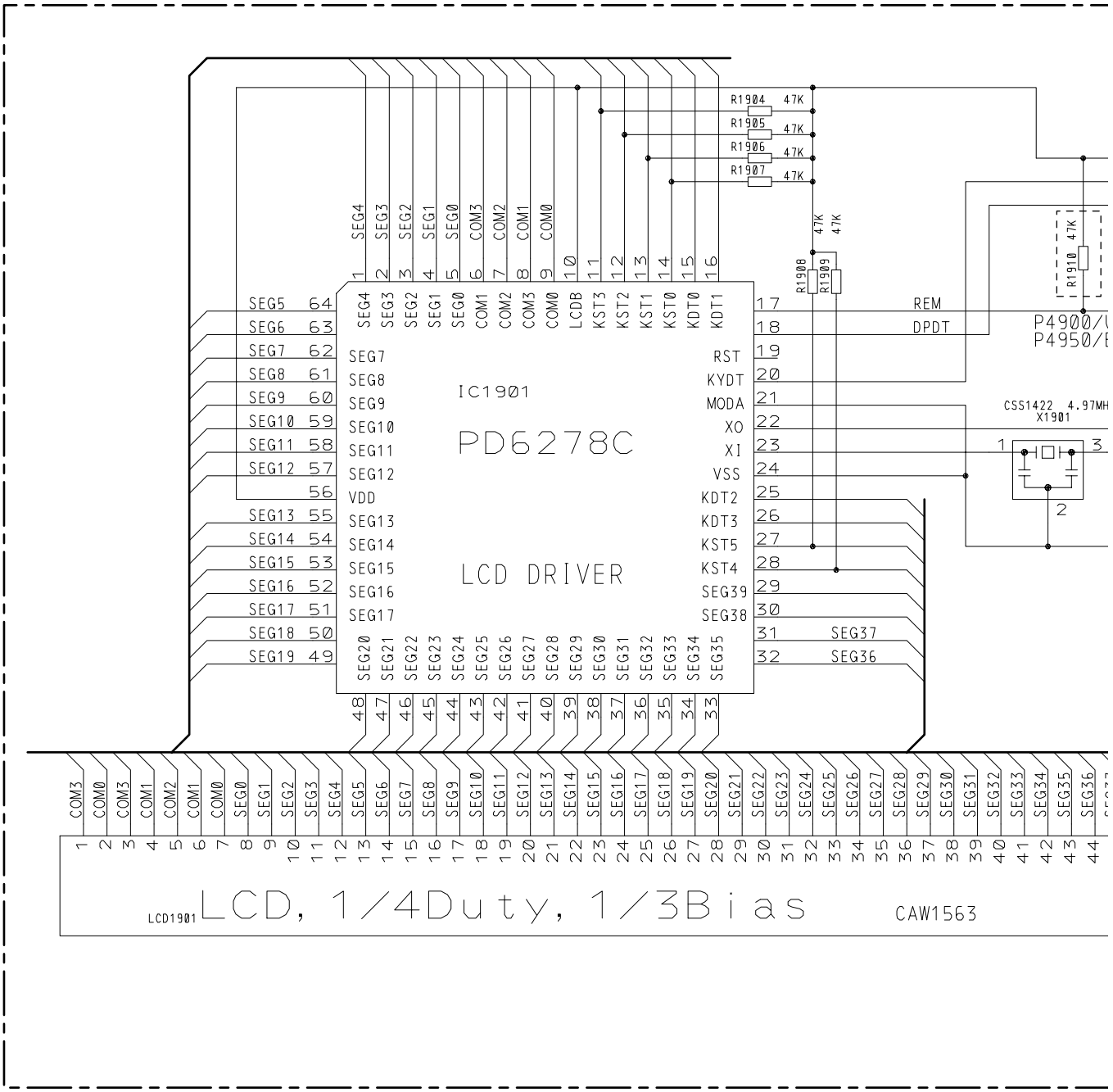

A
:R UNIT
13 Vcc
12 SEEK
11 AF GND
10 AM ST
9 FM SL
8 Rch
7 Lch
6 FM SD
5 IFC
4 MONO/REQ
3 ST
2 COMP
1 AF GND
AM DET
AM AF OUT
AM 2ND IF (450KHz)
FM MPX
PNS
IC2 PA4024A
FM IF
25 LPF
26 LPF
27 REQ/MO
28 AMIN
29 DDSSENS
30 ARCτ
31 ENVτ
32 ENVSENS
33 PNSSENS
34 AGC
35 AGCgain
36 HPF
37 SMPNS
38 Vcc
39 IFC
40 SD
41 200kSD
42 SDτ
43 SL
44 Vcc
45 IFLPF
46 IFVref
47 IFIN
48 IFGND
LOOP F 24
LOOP F 23
STIND 22
VCO 21
Rch 20
Lch 19
AFGND 18
MUTEadj 17
SDadj 16
HCCadj 15
ARCadj 14
MPdet 13
ENVHCC 12
SUBB 11
MUTEτ 10
HOLD C 9
PNSIN 8
COMP 7
HCC 6
MUTE 5
AFC 4
Vref 3
Q_IN 2
IFOUT 1
AM SL 31
AMOUT 30
AMVref 29
AMIFOUT 28
AM SE 27
AGC2IN 26
AMIFIN 25
18 MIX2
19 IFOUT2
20 IF GND
21 X'TAL
22 X'TAL
23 MIX2OUT
24 AMVcc
X151:918.5Hz
B
C
D

● **CWE1486(KEH-P4950/X1M/ES)**

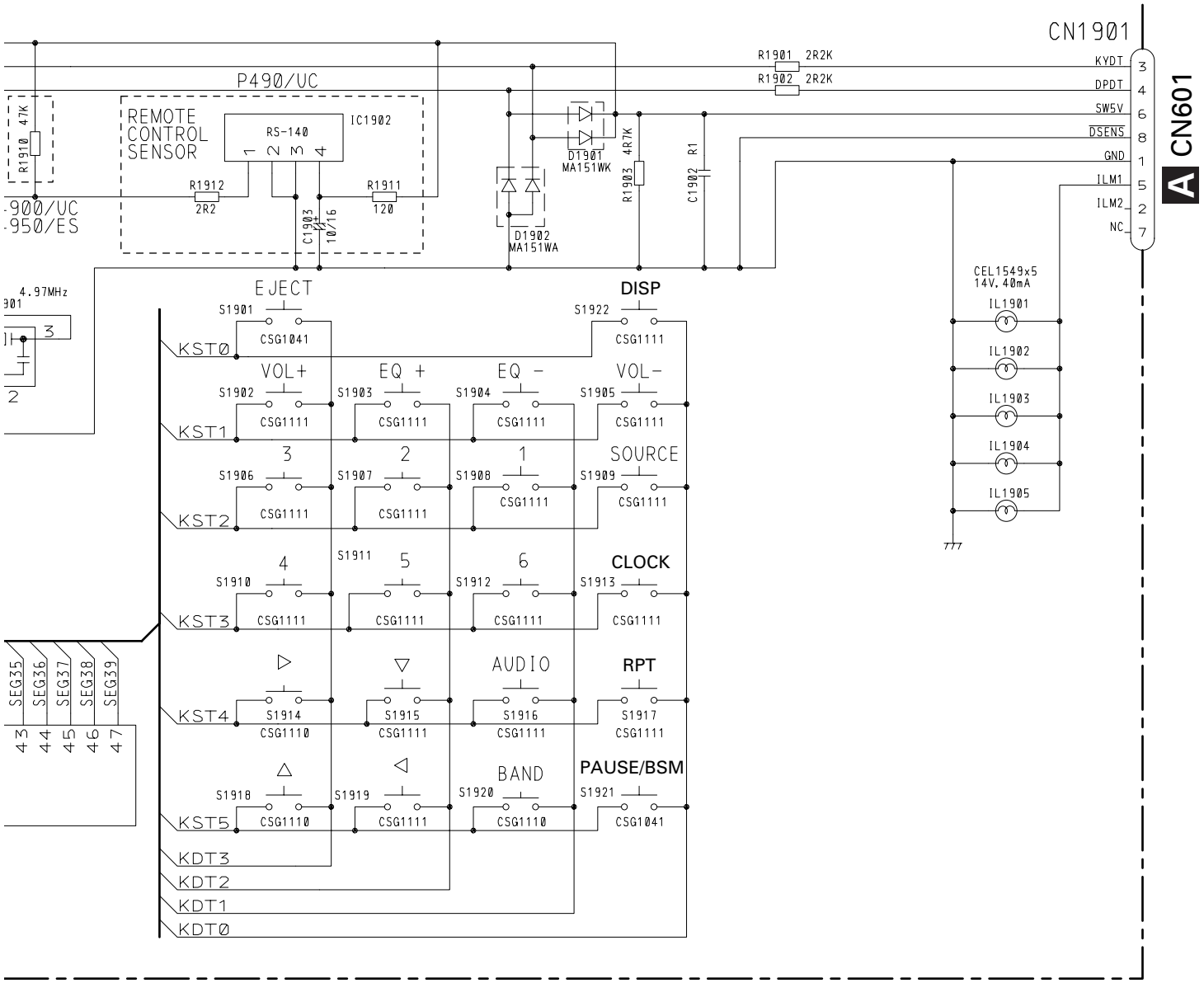



A
R UNIT
13 Vcc
12 SEEK
11 AF GND
10 AM ST
9 FM SL
8 Rch
7 Lch
6 FM SD
5 IFC
4 MONO/REQ
3 ST
2 COMP
1 AF GND
FM MPX
AM DET
AM AF OUT
AM 2ND IF (450KHz)
PNS
IC2 PA4024A
FM IF
25 LPF
26 LPF
27 REQ/MO
28 AMIN
29 DDSSENS
30 ARCr
31 ENVr
32 ENVSENS
33 PNSSENS
34 AGC
35 AGCgain
36 HPF
37 SMPNS
38 Vcc
39 IFC
40 SD
41 200kSD
42 SDr
43 SL
44 Vcc
45 IFLPF
46 IFVref
47 IFIN
48 IFGND
24 LOOP F
23 LOOP F
22 STIND
21 VCO
20 Rch
19 Lch
18 AFGND
17 MUTEadj
16 SDadj
15 HCCadj
14 ARCadj
13 MPdet
12 ENVHCC
11 SUBB
10 MUTEr
9 HOLD C
8 PNSIN
7 COMP
6 HCC
5 MUTE
4 AFC
3 Vref
2 Q_IN
1 IFOUT
1 AM SL
2 AMOUT
3 AMVref
4 AMIFOUT
5 AM SE
6 AGC2IN
7 AMIFIN
8 MIX2
9 IFOUT2
10 IF GND
11 X'TAL
12 X'TAL
13 MIX2OUT
14 AMVcc
X151:918.5Hz
CF232
CF53
TP5
TP6
TP3 CENTER METER
TP4 CENTER METER
T51

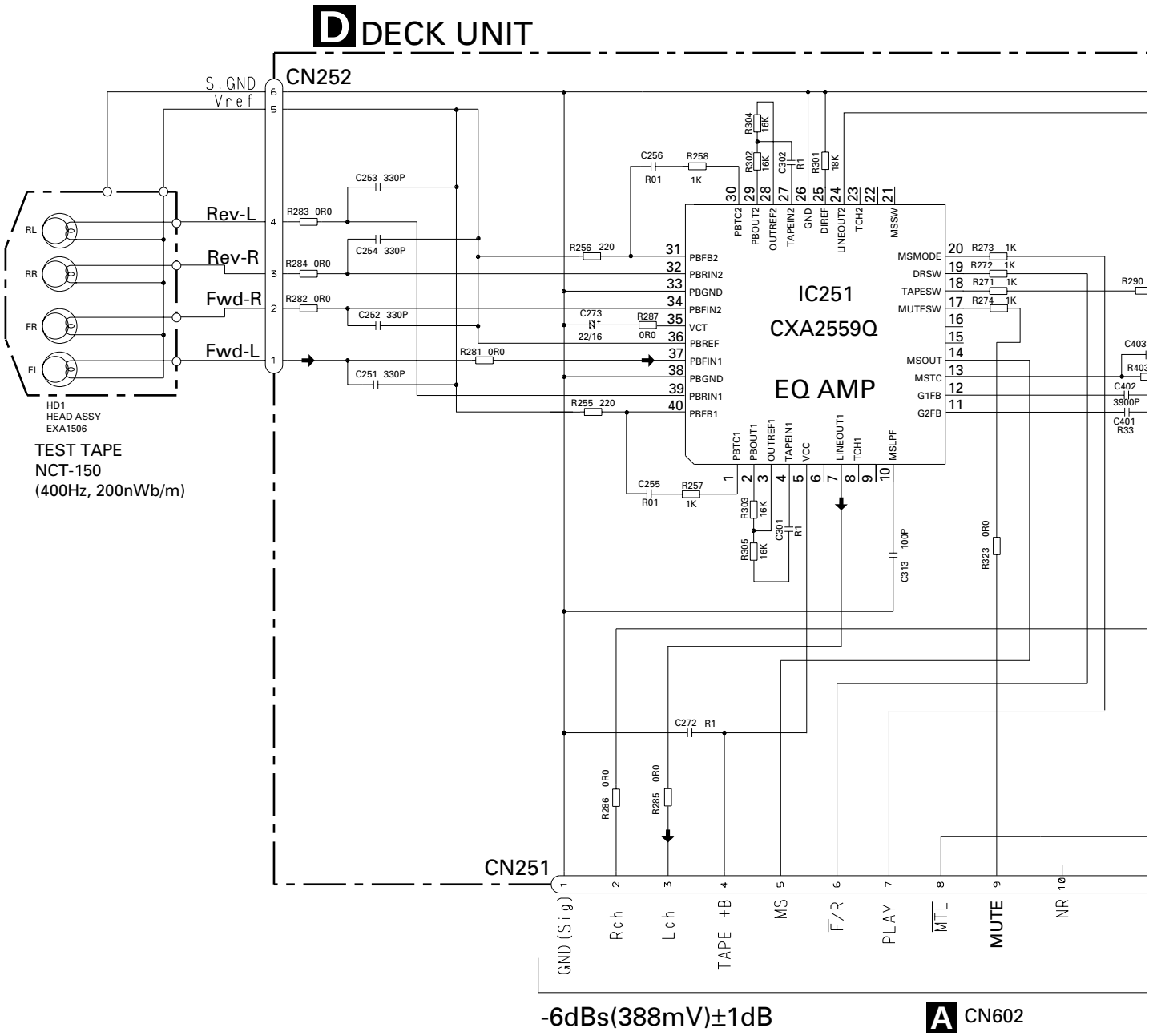
3.4 KEYBOARD UNIT

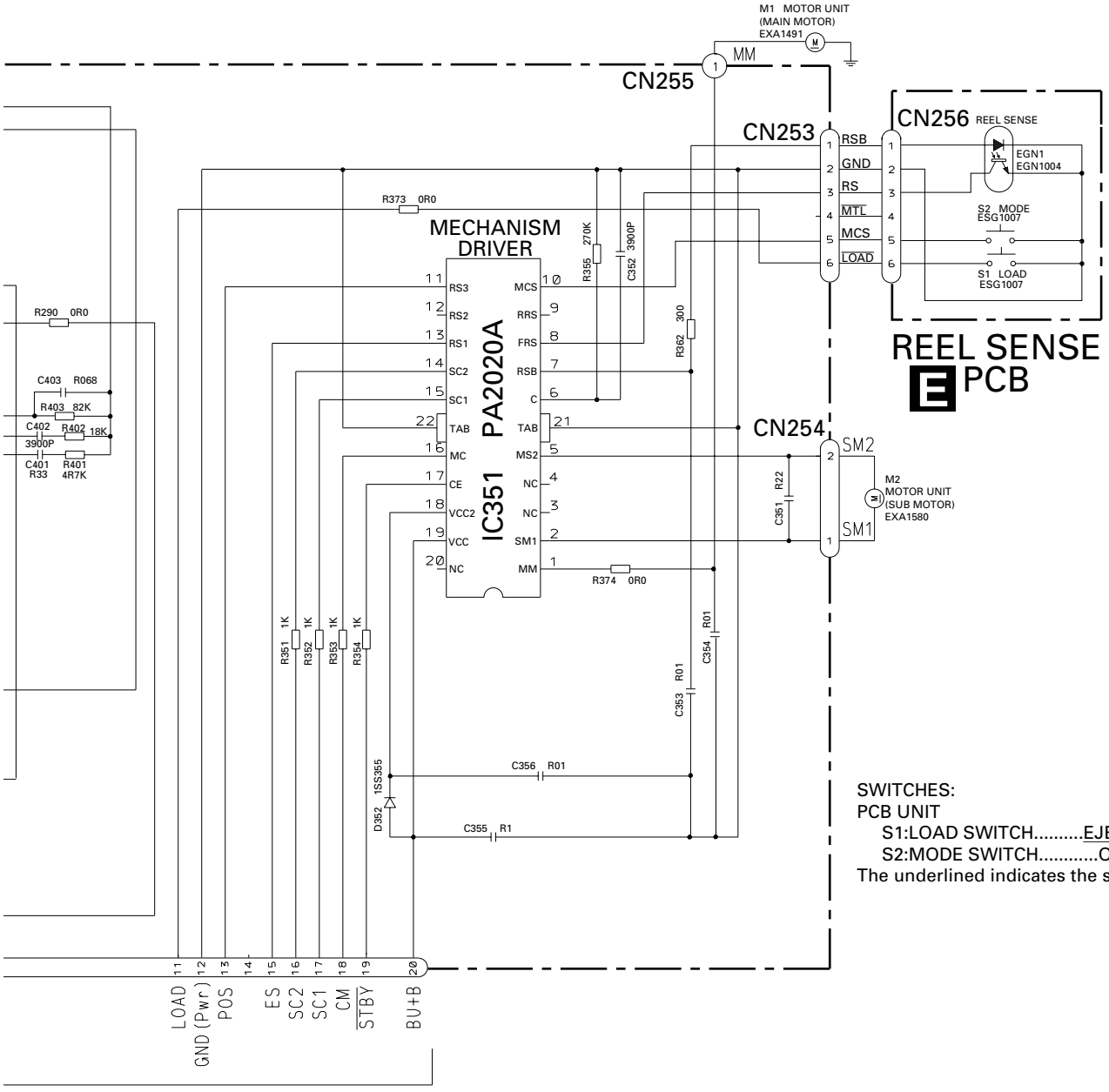


C KEYBOARD UNIT



3.5 CASSETTE MECHANISM MODULE





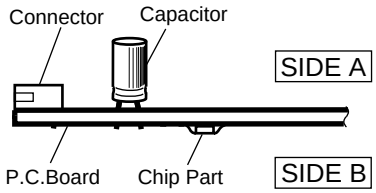
SWITCHES:
PCB UNIT
S1:LOAD SWITCH.....EJECT-PLAY
S2:MODE SWITCH.....ON-OFF
The underlined indicates the switch position.

4. PCB CONNECTION DIAGRAM

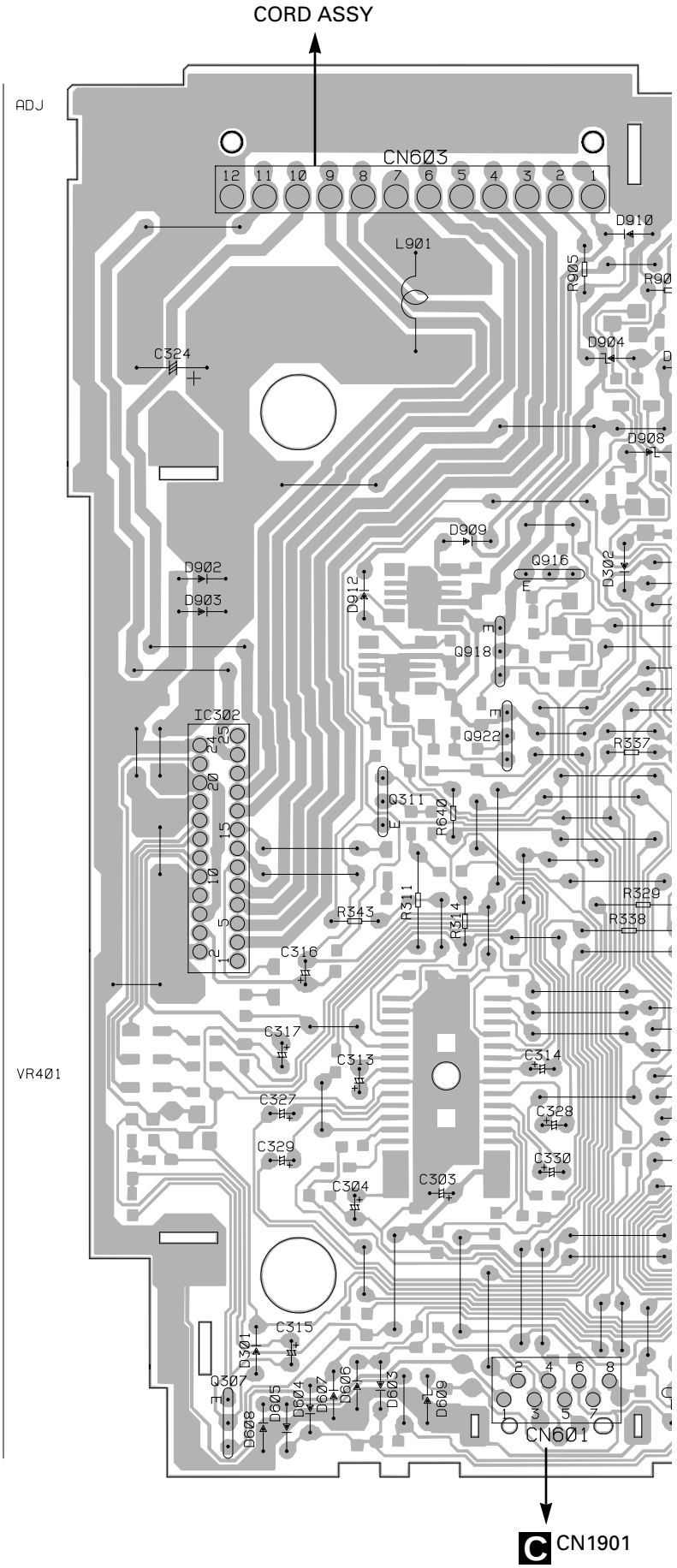
4.1 TUNER AMP UNIT

NOTE FOR PCB DIAGRAMS

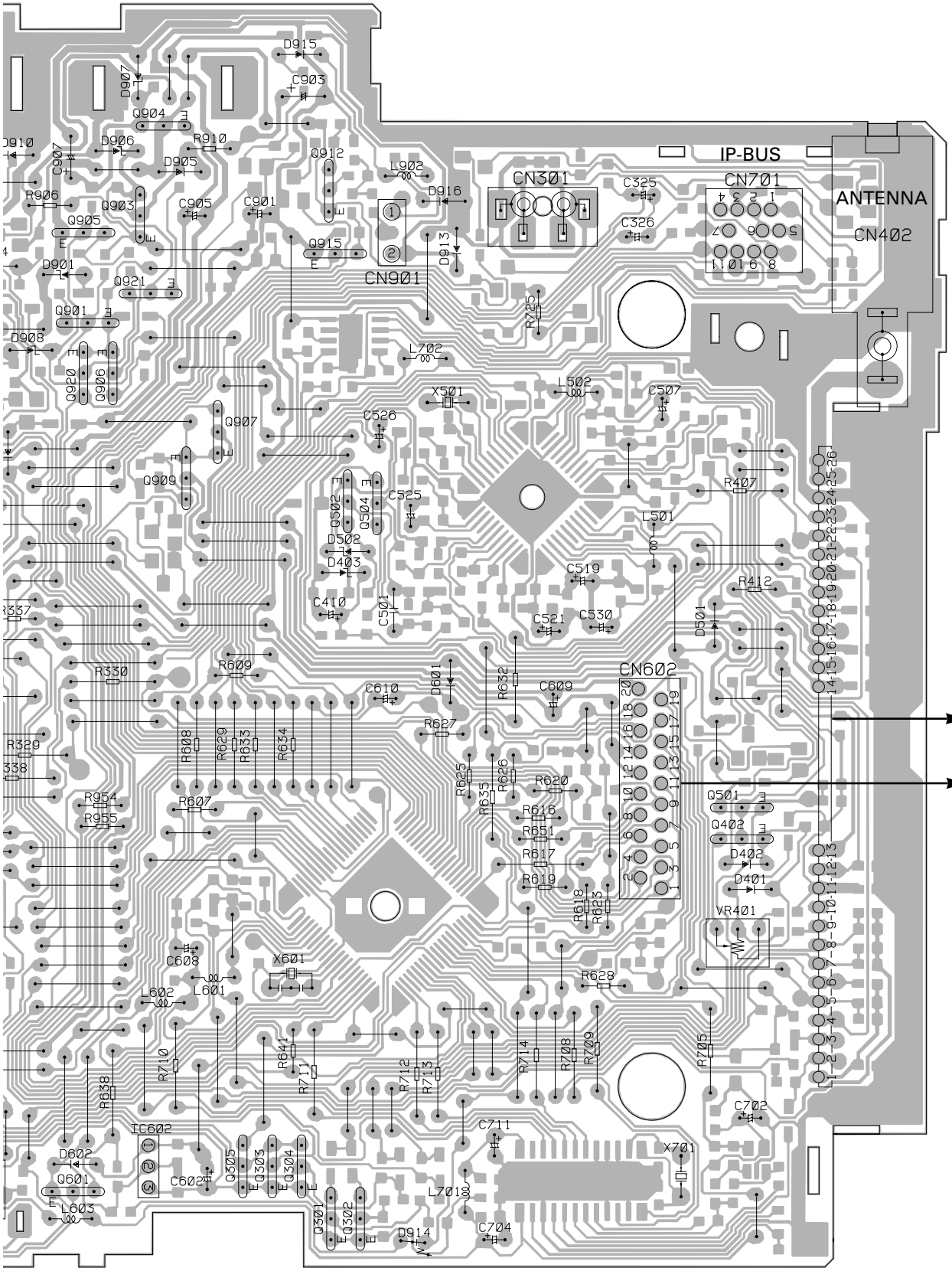
1. The parts mounted on this PCB include all necessary parts for several destination.
   For further information for respective destinations, be sure to check with the schematic diagram.
2. Viewpoint of PCB diagrams



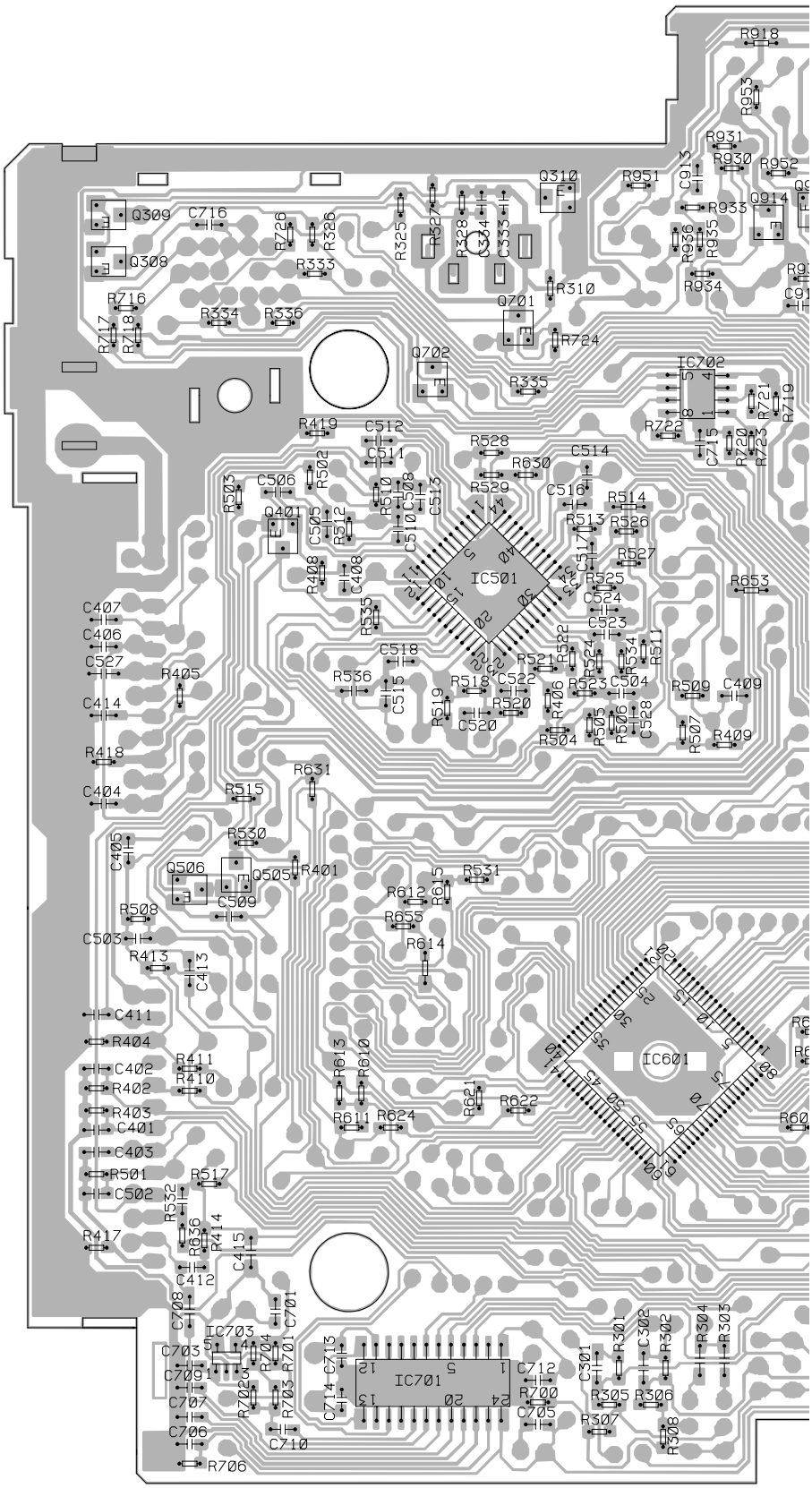
A TUNER AMP UNIT



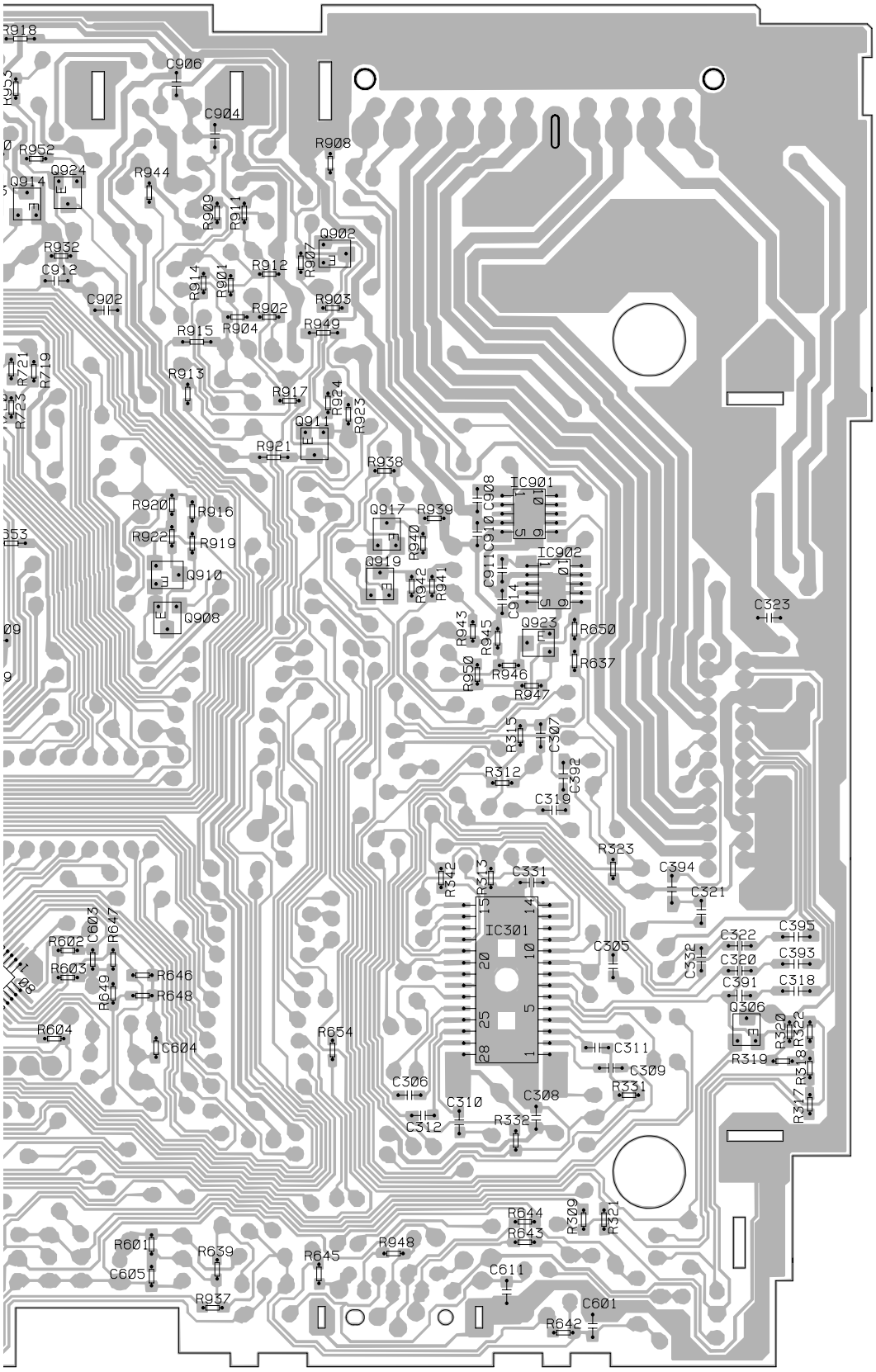
SIDE A



A TUNER AMP UNIT

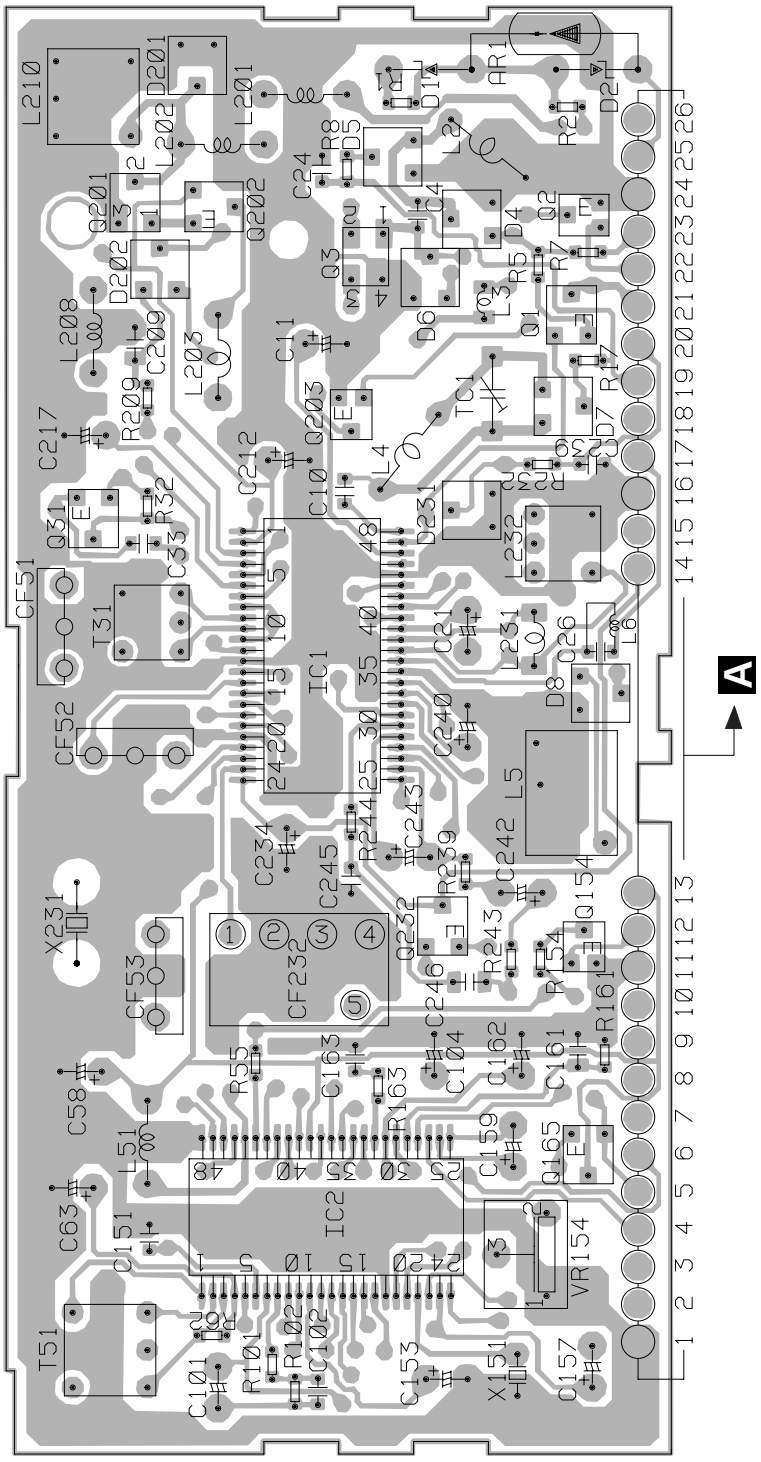


SIDE B

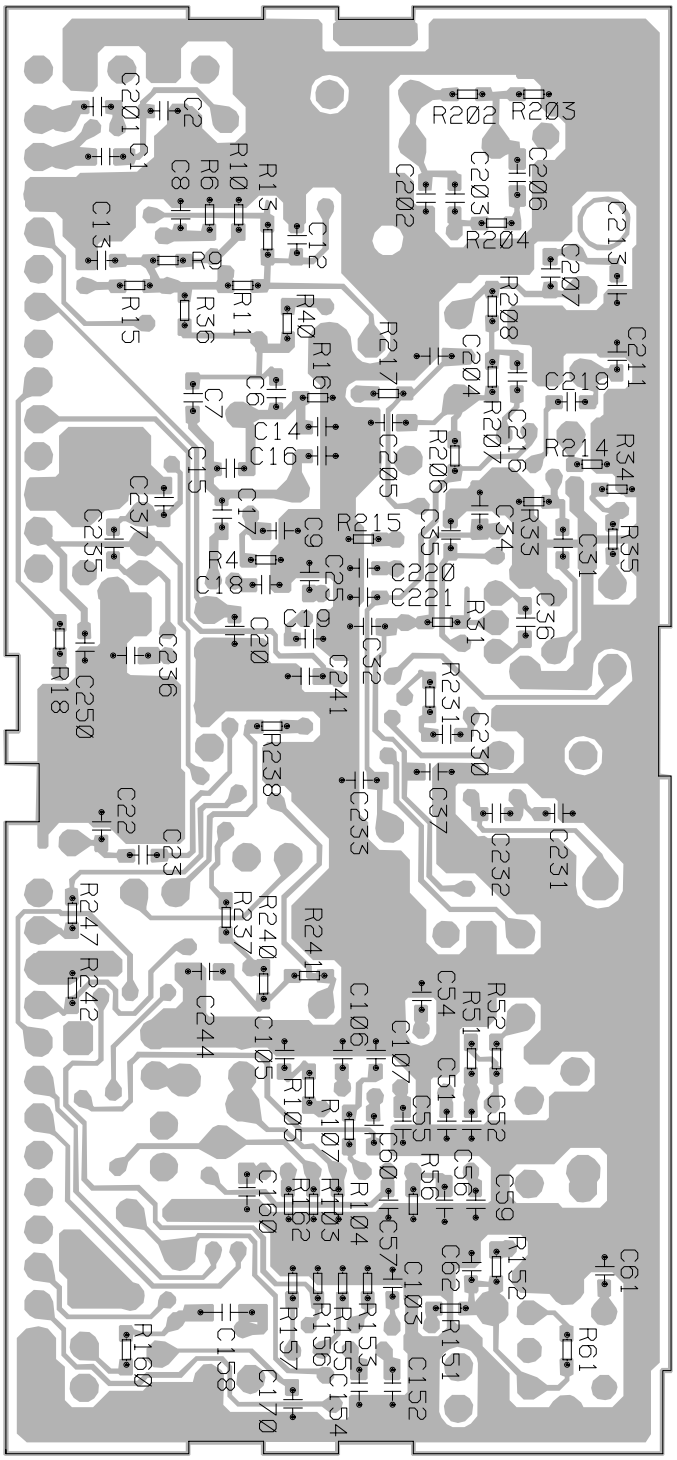

IC, Q
Q310
Q914 Q924
Q309
Q308
Q902
Q701
Q702
IC702
Q911
Q401
IC901
Q917
IC501
Q919 IC902
Q910
Q908 Q923
Q506 Q505
IC301
IC601
Q306
IC703
IC701
A
B
C
D

4.2 FM/AM TUNER UNIT

SIDE A

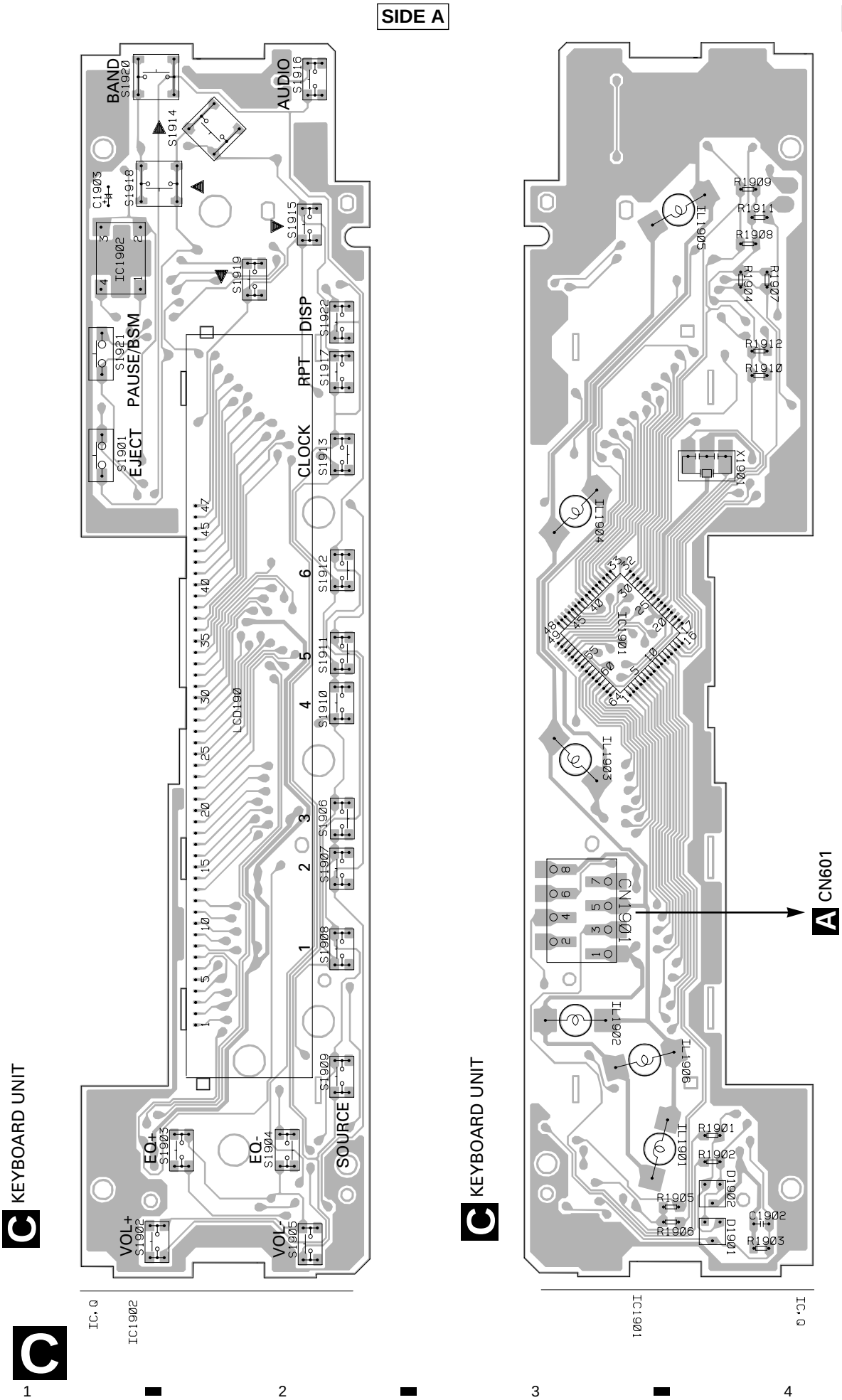


SIDE B



B FM/AM TUNER UNIT

4.3 KEYBOARD UNIT

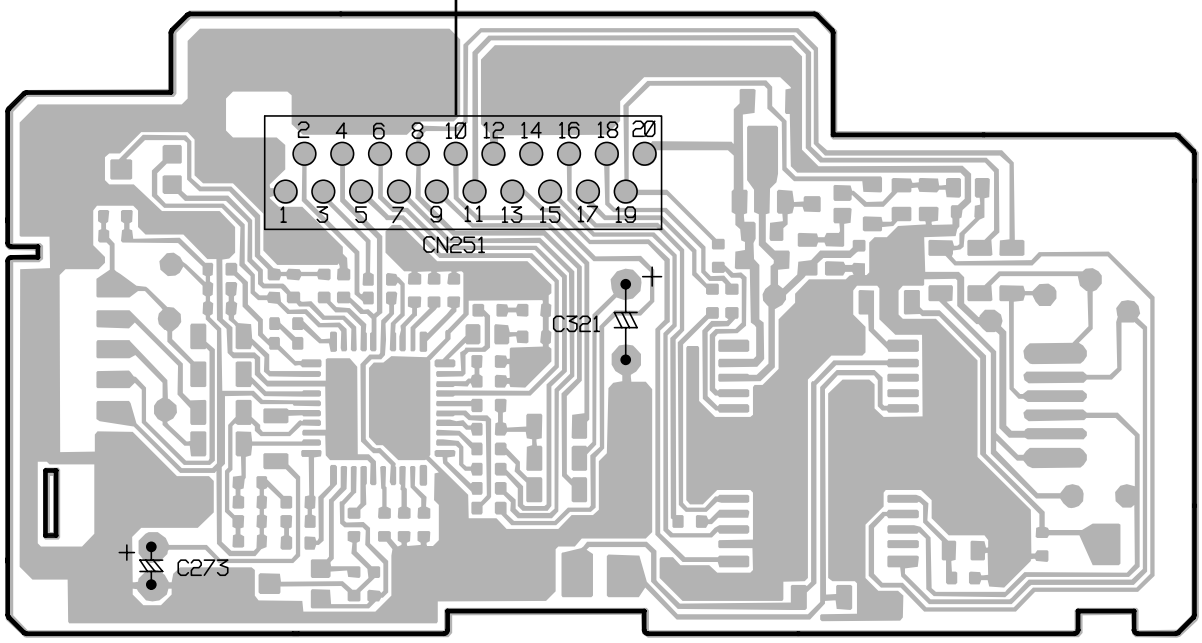


4.4 CASSETTE MECHANISM MODULE

D DECK UNIT

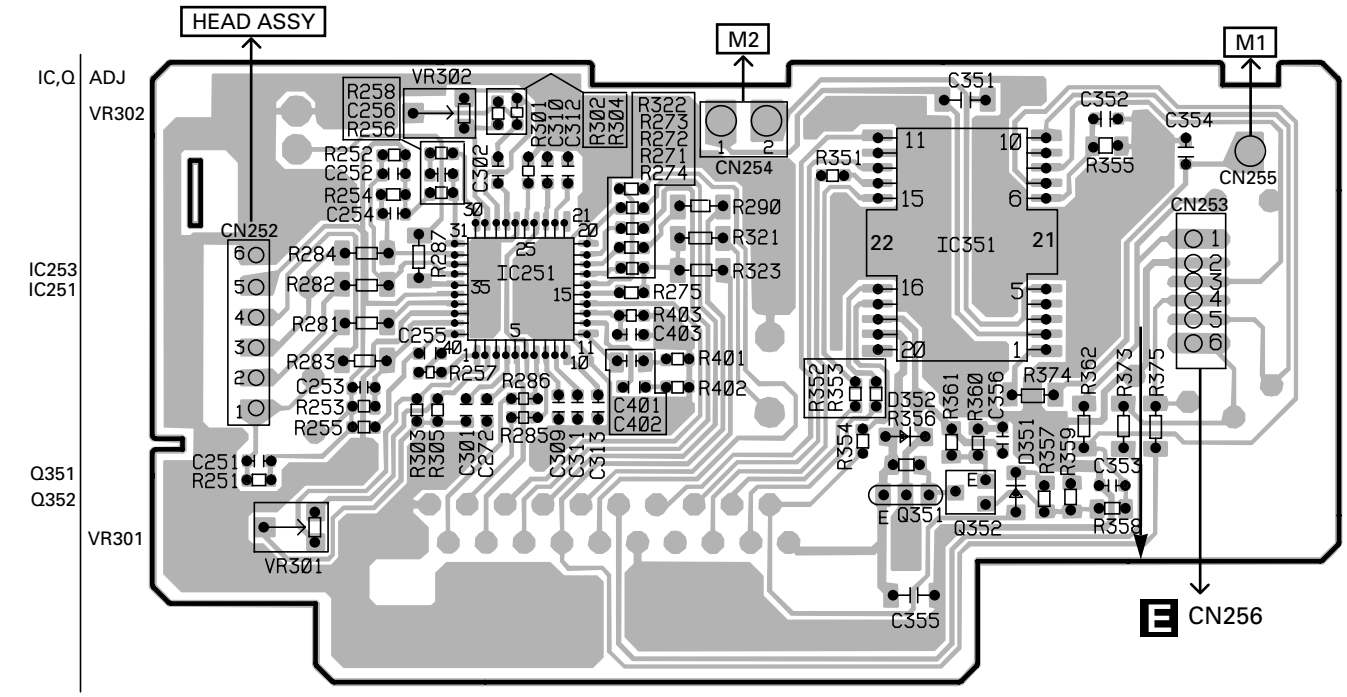
A CN602

SIDE A

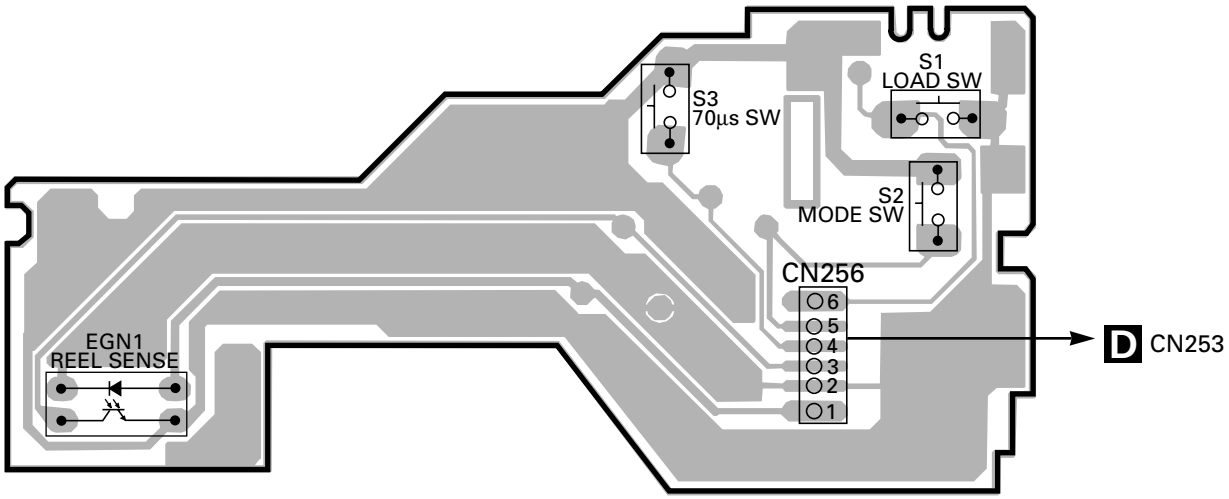


D DECK UNIT

SIDE B



E REEL SENSE PCB



5. ELECTRICAL PARTS LIST

NOTES:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/○S○○○J,RS1/○○S○○○J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

A Unit Number : CWM7021(KEH-P490/X1M/UC)
(KEH-P4900/X1M/UC)
Unit Number : CWM7025(KEH-P4950/X1M/ES)
Unit Name : Tuner Amp Unit

MISCELLANEOUS

=====Circuit Symbol and No.		===Part Name	Part No.
IC	301	IC	PML003AM
IC	302	IC	TDA7384
IC	501	IC	PM2006A
IC	601	IC	PE5086A
IC	602	IC	S-80734AN
IC	702	IC	CA0008AM
IC	901	IC	TPD1018F
Q	306	Transistor	DTC124EK
Q	307	Transistor	2SC1740S
Q	308	Transistor	DTC143TK
Q	309	Transistor	DTC143TK
Q	310	Transistor	DTA124EK
Q	401	Transistor	2SC2412K
Q	505	Transistor	DTA124EK
Q	506	Transistor	DTC114EK
Q	601	Transistor	2SA933S
Q	701	Transistor	2SA1037K
Q	702	Transistor	DTC114EK
Q	901	Transistor	2SC1740S
Q	902	Transistor	2SC2412K
Q	903	Transistor	2SD2037
Q	904	Transistor	2SD2396
Q	905	Transistor	2SB1238
Q	906	Transistor	2SC1740S
Q	907	Transistor	2SA1048
Q	908	Transistor	DTC114TK
Q	909	Transistor	2SA1048
Q	910	Transistor	DTC114TK
Q	911	Transistor	2SC2412K
Q	920	Transistor	DTC114ES
Q	921	Transistor	DTA124ES
D	301	Diode	1SS270
D	302	Diode	1SS270
D	401	Diode	1SS270
D	402	Diode	1SS270
D	601	Diode	1SS270
D	602	Diode	1SS270
D	603	Diode	1SS270
D	604	Diode	1SS270
D	605	Diode	1SS270
D	606	Diode	1SS270
D	607	Diode	1SS270
D	608	Diode	1SS270
D	901	Diode	HZS7L(C2)
D	902	Diode	1SR139-400
D	903	Diode	1SR139-400
D	904	Diode	HZS7L(A1)
D	905	Diode	1SR139-400
D	906	Diode	HZS6L(B2)
D	907	Diode	HZS9L(B3)

=====Circuit Symbol and No.		===Part Name	Part No.
D	908	Diode	HZS9L(A2)
D	909	Diode	1SR139-400
D	910	Diode	1SR139-400
L	401	Inductor	See Contrast table
L	501	Ferri-Inductor	LAU2R2K
L	502	Ferri-Inductor	LAU2R2K
L	601	Ferri-Inductor	LAU2R2K
L	602	Ferri-Inductor	LAU2R2K
L	603	Ferri-Inductor	LAU2R2K
L	702	Ferri-Inductor	LAU2R2K
L	901	Choke Coil 600µH	CTH1168
X	501	Crystal Resonator 7.2MHz	CSS1474
X	601	Ceramic Resonator 4.194MHz	CSS1047
		FM/AM Tunew Unit	See Contrast table

RESISTORS

R	301		RS1/10S0R0J
R	302		RS1/10S0R0J
R	310		RS1/10S103J
R	317		RS1/10S152J
R	318		RS1/10S103J
R	319		RS1/10S221J
R	320		RS1/10S101J
R	321		RS1/10S223J
R	322		RS1/10S153J
R	323		RS1/10S103J
R	325		RS1/10S821J
R	326		RS1/10S821J
R	327		RS1/10S223J
R	328		RS1/10S223J
R	333		RS1/10S101J
R	334		RS1/10S101J
R	335		RS1/10S223J
R	336		RS1/10S223J
R	337		RD1/4PU102J
R	338		RD1/4PU102J
R	342		RS1/10S0R0J
R	401		See Contrast table
R	402		RS1/10S162J
R	403		RS1/10S162J
R	404		RS1/10S0R0J
R	405		See Contrast table
R	406		RS1/10S102J
R	407		RD1/4PU222J
R	408		RS1/10S222J
R	410		RS1/10S102J
R	412		RD1/4PU103J
R	413		RS1/10S393J
R	417		RS1/10S0R0J
R	418		RS1/10S0R0J
R	419		RS1/10S0R0J
R	502		RS1/10S102J
R	503		RS1/10S222J
R	506		RS1/10S182J
R	511		RS1/10S0R0J
R	512		See Contrast table

Circuit Symbol and No.		Part Name	Part No.
R	513		RS1/10S102J
R	514		RS1/8S0R0J
R	515		RS1/10S562J
R	517		RS1/10S473J
R	518		RS1/10S152J
R	519		RS1/10S472J
R	520		RS1/10S472J
R	521		RS1/10S472J
R	523		RS1/10S0R0J
R	524		RS1/10S103J
R	525		RS1/10S152J
R	526		RS1/10S392J
R	527		RS1/10S392J
R	528		RS1/10S472J
R	529		RS1/10S473J
R	531		RS1/10S104J
R	532		RS1/10S473J
R	535		RS1/10S102J
R	601		RS1/10S124J
R	604		RS1/10S473J
R	607		RD1/4PU102J
R	610		RS1/10S473J
R	611		RS1/10S473J
R	612		RS1/10S473J
R	613		RS1/10S473J
R	614		RS1/8S103J
R	615		RS1/10S392J
R	616		RD1/4PU222J
R	617		RD1/4PU223J
R	618		RD1/4PU222J
R	619		RD1/4PU222J
R	621		RS1/10S222J
R	622		RS1/10S222J
R	623		RD1/4PU222J
R	624		RS1/10S222J
R	625		RD1/4PU222J
R	626		RD1/4PU222J
R	627		RD1/4PU222J
R	628		RD1/4PU222J
R	629		RD1/4PU681J
R	630		RS1/10S681J
R	633		RD1/4PU681J
R	634		RD1/4PU681J
R	635		RD1/4PU222J
R	636		RS1/10S472J
R	637		RS1/10S103J
R	638		RD1/4PU222J
R	639		RS1/10S223J
R	641		RD1/4PU222J
R	642		RS1/10S473J
R	643		RS1/10S472J
R	644		RS1/10S472J
R	645		RS1/10S472J
R	646		RS1/10S103J
R	647		RS1/10S103J
R	648		See Contrast table
R	649		RS1/10S103J
R	651		RD1/4PU222J
R	653		RS1/8S0R0J
R	654		RS1/10S0R0J
R	655		RS1/10S473J
R	716		RS1/10S620J
R	717		RS1/10S101J
R	718		RS1/10S101J
R	719		RS1/10S473J
R	720		RS1/10S473J
R	721		RS1/10S102J
R	722		RS1/10S102J
R	723		RS1/10S102J
R	724		RS1/10S223J

Circuit Symbol and No.		Part Name	Part No.
R	725		RD1/4PU472J
R	726		RS1/10S222J
R	901		RS1/10S473J
R	902		RS1/10S223J
R	903		RS1/10S223J
R	904		RS1/10S473J
R	905		RD1/4PU102J
R	906		RD1/4PU473J
R	907		RS1/10S473J
R	908		RS1/10S472J
R	909		RS1/10S332J
R	910		RD1/4PU101J
R	911		RS1/10S102J
R	912		RS1/10S103J
R	913		RS1/10S103J
R	914		RS1/10S222J
R	915		RS1/8S103J
R	916		RS1/10S103J
R	917		RS1/10S0R0J
R	919		RS1/10S102J
R	920		RS1/10S103J
R	921		RS1/10S152J
R	922		RS1/10S102J
R	923		RS1/10S103J
R	924		RS1/10S223J
R	932		RS1/10S473J
R	944		RS1/10S152J
R	949		RS1/8S1R0J
R	955		RD1/4PU473J

CAPACITORS

Circuit Symbol and No.		Part Name	Part No.
C	303		CEJA470M10
C	304		CEJA100M16
C	308		CKSQYB104K50
C	309		CKSQYB224K16
C	310		CKSQYB224K16
C	311		CKSQYB224K16
C	312		CKSQYB224K16
C	313		CEJA4R7M35
C	314		CEJA4R7M35
C	315		CEJA330M10
C	316		CEJA1R0M50
C	317		CEJA100M16
C	318		CKSYB225K16
C	319		CKSQYB474K16
C	320		CKSQYB474K16
C	321		CKSQYB474K16
C	322		CKSQYB474K16
C	323		CKSQYB104K50
C	324	3300µF/16V	CCH1169
C	325		CEJA2R2M50
C	326		CEJA2R2M50
C	327		CEJA1R0M50
C	328		CEJA1R0M50
C	329		CEJA1R0M50
C	330		CEJA1R0M50
C	331		CKSQYB153K50
C	332		CKSQYB153K50
C	391		CKSQYB225K10
C	392		CKSYB474K16
C	393		CKSYB474K16
C	394		CKSYB474K16
C	395		CKSYB474K16
C	401		CKSQYB473K50
C	402		CKSQYB473K50
C	403		CKSQYB223K25

Circuit Symbol and No.		Part Name	Part No.
C	407		CKSQYB223K50
C	408		CCSQSL101J50
C	411		CCSQSL101J50
C	413		CKSQYB223K50
C	414		CKSQYB103K50
C	504		CKSQYB103K50
C	505		CKSQYB103K50
C	506		See Contrast table
C	507		CEJA220M6R3
C	508		CKSQYB102K50
C	510		CCSQSL101J50
C	511		CKSQYB103K50
C	512		CKSQYB103K50
C	513		CKSQYB103K50
C	514		CCSQCH150J50
C	515		CKSQYB102K50
C	516		CCSQCH150J50
C	518		CKSQYB103K50
C	519		CEJA220M6R3
C	520		CKSQYB103K50
C	521		CEJA220M6R3
C	522		CKSQYB103K50
C	524		CKSQYB103K50
C	525	4.7µF/16V	CCH1250
C	527		CKLSR473K16
C	528		CKSQYB154K16
C	530		CEJA220M10
C	601		CKSQYB473K50
C	602		CEJA2R2M50
C	603		CKSQYB103K50
C	604		CCSQCH101J50
C	608		CEJA4R7M35
C	609		CEJA100M16
C	610		CEJA220M10
C	611		CKSQYB223K50
C	715		CKSQYB102K50
C	716		CKSQYB104K50
C	901		CEJA101M10
C	902		CKSQYB473K50
C	903	470µF/16V	CCH1183
C	904		CKSQYB103K50
C	905	330µF/10V	CCH1181
C	906		CKSQYB103K50
C	907	100µF/16V	CCH1179
C	908		CKSQYB103K50
C	910		CKSQYB473K50

CONTRAST TABLE of TUNER AMP UNIT

KEH-P490/X1M/UC, KEH-P4900/X1M/UC and KEH-P4950/X1M/ES are constructed same except for the following:

Symbol and Description		Part No. KEH-P490/X1M/UC KEH-P4900/X1M/UC	Part No. KEH-P4950/X1M/ES
	FM/AM Tuner Unit	CWE1467	CWE1486
L401	Inductor	LCTBR39K2125	Not used
R401		Not used	RS1/10S182J
R405		Not used	RS1/10S510J
R512		RS1/10S0R0J	Not used
R648		Not used	RS1/10S183J
C506		Not used	CKSQYB103K50

B Unit Number : CWE1467(KEH-P490/X1M/UC)
(KEH-P4900/X1M/UC)
Unit Name : FM/AM Tuner Unit

MISCELLANEOUS

Circuit Symbol and No.		Part Name	Part No.
IC	1	IC	PA4023B
IC	2	IC	PA4024A
Q	1	Transistor	2SC2412K
Q	2	Transistor	DTC124EU
Q	3	FET	3SK263
Q	31	Transistor	2SC2412K
Q	201	FET	2SK932
Q	202	Transistor	2SC2412K
Q	203	Transistor	DTC124EU
D	1	Diode	RD39JS
D	2	Diode	RD39JS
D	4	Diode	1SV250
D	5	Diode	KV1410-F1
D	6	Diode	MA157
D	7	Diode	KV1410-F1
D	8	Diode	KV1410-F1
D	201	Diode	MA157
D	202	Diode	MA157
D	231	Diode	SVC253
L	2	Coil	CTC1133
L	3	Inductor	LCTB2R2K2125
L	4	Coil	CTC1133
L	5	Coil	CTC1132
L	51	Ferri-Inductor	LAU150K
L	201	Ferri-Inductor	LAU4R7K
L	202	Ferri-Inductor	LAU330K
L	203	Inductor	CTF1287
L	208	Inductor	LAU121K
L	231	Inductor	LCTA3R3J3225
T	31	Coil	CTE1117
T	51	Coil	CTC1159
CF	51	Ceramic Filter	CTF1441
CF	52	Ceramic Filter	CTF1441
CF	53	Ceramic Filter	CTF1441
CF	232	Ceramic Filter	CTF1348

Circuit Symbol and No.	Part Name	Part No.
X 151	Radiator 918.5Hz	CSS1365
X 231	Crystal Resonator 10.26MHz	CSS1111
VR 154	Semi-fixed 150kΩ(B)	CCP1213

RESISTORS

R 1		RS1/16S225J
R 2		RS1/16S225J
R 4		RS1/16S154J
R 5		RS1/16S391J
R 6		RS1/16S223J
R 7		RS1/16S123J
R 8		RS1/16S332J
R 9		RS1/16S473J
R 10		RS1/16S223J
R 11		RS1/16S124J
R 13		RS1/16S563J
R 15		RS1/16S271J
R 16		RS1/16S104J
R 17		RS1/16S332J
R 18		RS1/16S332J
R 31		RS1/16S470J
R 32		RS1/16S822J
R 33		RS1/16S822J
R 34		RS1/16S331J
R 35		RS1/16S331J
R 40		RS1/16S470J
R 51		RS1/16S271J
R 52		RS1/16S560J
R 55		RS1/16S102J
R 56		RS1/16S823J
R 61		RS1/16S392J
R 62		RS1/16S273J
R 101		RS1/16S272J
R 102		RS1/16S682J
R 103		RS1/16S333J
R 104		RS1/16S334J
R 105		RS1/16S683J
R 107		RS1/16S222J
R 151		RS1/16S222J
R 152		RS1/16S393J
R 155		RS1/16S273J
R 156		RS1/16S243J
R 157		RS1/16S203J
R 160		RS1/16S222J
R 161		RS1/16S563J
R 162		RS1/16S105J
R 163		RS1/16S223J
R 202		RS1/16S223J
R 203		RS1/16S225J
R 204		RS1/16S103J
R 206		RS1/16S220J
R 207		RS1/16S101J
R 208		RS1/16S102J
R 209		RS1/16S471J
R 214		RS1/16S822J
R 215		RS1/16S822J
R 217		RS1/16S102J
R 231		RS1/16S272J
R 232		RS1/16S473J
R 237		RS1/16S103J
R 238		RS1/16S104J
R 239		RS1/16S104J
R 240		RS1/16S332J
R 241		RS1/16S202J
R 243		RS1/16S183J
R 244		RS1/16S392J
R 247		RS1/16S123J

Circuit Symbol and No.	Part Name	Part No.

CAPACITORS

C 1		CCSQCH6R0D50
C 2		CCSRCK2R0C50
C 4		CCSRCH820J50
C 6		CCSRCH820J50
C 8		CKSRYB103K25
C 9		CKSQYB104K16
C 10		CCSRCKR50C50
C 11		CEJA1R0M50
C 12		CKSRYB222K50
C 13		CKSRYB222K50
C 14		CCSRCH220J50
C 15		CCSRCH6R0D50
C 16		CCSRCH8R0D50
C 17		CKSRYB222K50
C 18		CKSRYB103K25
C 19		CKSRYB222K50
C 20		CKSRYB222K50
C 21		CEJA100M16
C 22		CCSRTH9R0D50
C 23		CCSRTH120J50
C 24		CCSRCH471J50
C 25		CKSRYB103K25
C 26		CCSRCH101J50
C 31		CKSRYB103K25
C 32		CKSQYB472K50
C 33		CCSRCH5R0C50
C 34		CKSQYB104K16
C 36		CCSRRH201J50
C 51		CKSRYB223K25
C 52		CKSRYB103K25
C 54		CCSRCH470J50
C 55		CKSQYB223K25
C 56		CKSQYB104K16
C 57		CKSRYB472K50
C 58		CEJA330M10
C 59		CKSRYB103K25
C 60		CKSRYB102K50
C 61		CCSRCH270J50
C 62		CKSRYB103K25
C 63		CEJAR22M50
C 101		CEJANP100M10
C 102		CKSRYB182K50
C 103		CKSRYB682K25
C 104		CEJA2R2M50
C 105		CKSRYB103K25
C 106		CCSRCH151J50
C 107		CKSRYB103K25
C 151		CKSRYB472K50
C 152		CKSQYB104K16
C 153		CEJA3R3M50
C 154		CKSQYB104K16
C 157		CEJA3R3M50
C 158		CKSYB474K16
C 159		CEJA220M6R3
C 160		CKSQYB104K16
C 161		CKSQYB104K16
C 162		CEJA3R3M50
C 163		CKSRYB102K50
C 170		CCSRCH100D50
C 201		CCSRCH471J50
C 202		CCSRCH100D50
C 203		CKSRYB332K50
C 204		CKSQYB473K16
C 205		CKSQYB473K16
C 206		CKSQYB104K16

=====Circuit Symbol and No.		===Part Name	Part No.
C	207		CCSRCH560J50
C	209		CKSQYB104K16
C	211		CCSRCH101J50
C	212		CEJA470M6R3
C	213		CKSRYB103K25
C	216		CCSRCH101J50
C	217		CEJA1R5M50
C	219		CCSRCH471J50
C	220		CKSRYB103K25
C	230		CKSRYB103K25
C	231		CCSRCH330J50
C	232		CCSRCH150J50
C	233		CKSQYB104K16
C	234		CEJA330M10
C	235		CKSRYB332K50
C	236		CKSQYB473K16
C	237		CCSRCH120J50
C	239		CKSRYB472K50
C	240		CEJAR47M50
C	241		CKSQYB104K16
C	242		CEJAR47M50
C	243		CEJAR33M50
C	244		CKSQYB473K16
C	245		CKSRYB333K16
C	246		CKSQYB473K16
C	250		CCSRCH471J50

B Unit Number : CWE1486(KEH-P4950/X1M/ES)
Unit Name : FM/AM Tuner Unit

MISCELLANEOUS

IC	1	IC	PA4023B
IC	2	IC	PA4024A
Q	1	Transistor	2SC2412K
Q	2	Transistor	DTC124EU
Q	3	FET	3SK263
Q	31	Transistor	2SC2412K
Q	201	FET	2SK932
Q	202	Transistor	2SC2412K
Q	203	Transistor	DTC124EU
D	1	Diode	RD39JS
D	2	Diode	RD39JS
D	4	Diode	1SV250
D	5	Diode	KV1410-F1
D	6	Diode	MA157
D	7	Diode	KV1410-F1
D	8	Diode	KV1410-F1
D	201	Diode	MA157
D	202	Diode	MA157
D	231	Diode	SVC253
L	2	Coil	CTC1133
L	3	Inductor	LCTB2R2K2125
L	4	Coil	CTC1133
L	5	Coil	CTC1132
L	6	Inductor	LCTBR15K1608
L	51	Ferri-Inductor	LAU150K
L	201	Ferri-Inductor	LAU4R7K
L	202	Ferri-Inductor	LAU330K
L	203	Inductor	CTF1287
L	208	Inductor	LAU121K
L	231	Inductor	LCTA3R3J3225
T	31	Coil	CTE1117
T	51	Coil	CTC1159
CF	51	Ceramic Filter	CTF1441
CF	52	Ceramic Filter	CTF1441
CF	53	Ceramic Filter	CTF1441

=====Circuit Symbol and No.		===Part Name	Part No.
CF	232	Ceramic Filter	CTF1348
X	151	Radiator 918.5Hz	CSS1365
X	231	Crystal Resonator 10.26MHz	CSS1111
VR	154	Semi-fixed 150kΩ(B)	CCP1213

RESISTORS

R	1	RS1/16S225J
R	2	RS1/16S225J
R	4	RS1/16S154J
R	5	RS1/16S391J
R	6	RS1/16S223J
R	7	RS1/16S123J
R	8	RS1/16S332J
R	9	RS1/16S473J
R	10	RS1/16S223J
R	11	RS1/16S124J
R	13	RS1/16S563J
R	15	RS1/16S271J
R	16	RS1/16S104J
R	17	RS1/16S332J
R	18	RS1/16S332J
R	31	RS1/16S470J
R	32	RS1/16S822J
R	33	RS1/16S822J
R	34	RS1/16S331J
R	35	RS1/16S331J
R	40	RS1/16S470J
R	51	RS1/16S271J
R	52	RS1/16S560J
R	55	RS1/16S102J
R	56	RS1/16S823J
R	61	RS1/16S392J
R	62	RS1/16S273J
R	101	RS1/16S272J
R	102	RS1/16S682J
R	103	RS1/16S333J
R	104	RS1/16S334J
R	105	RS1/16S683J
R	107	RS1/16S222J
R	151	RS1/16S222J
R	152	RS1/16S393J
R	155	RS1/16S273J
R	156	RS1/16S243J
R	157	RS1/16S203J
R	160	RS1/16S222J
R	161	RS1/16S563J
R	162	RS1/16S105J
R	163	RS1/16S223J
R	202	RS1/16S223J
R	203	RS1/16S225J
R	204	RS1/16S103J
R	206	RS1/16S220J
R	207	RS1/16S101J
R	208	RS1/16S102J
R	209	RS1/16S471J
R	214	RS1/16S822J
R	215	RS1/16S822J
R	217	RS1/16S102J
R	231	RS1/16S272J
R	232	RS1/16S473J
R	237	RS1/16S103J
R	238	RS1/16S104J
R	239	RS1/16S104J
R	240	RS1/16S332J
R	241	RS1/16S202J
R	243	RS1/16S183J
R	244	RS1/16S392J
R	247	RS1/16S123J

=====Circuit Symbol and No.	Part Name	Part No.
CAPACITORS		
C 1		CCSQCH6R0D50
C 2		CCSRCK2R0C50
C 4		CCSRCH820J50
C 6		CCSRCH820J50
C 8		CKSRYB103K25
C 9		CKSQYB104K16
C 10		CCSRCKR50C50
C 11		CEJA1R0M50
C 12		CKSRYB222K50
C 13		CKSRYB222K50
C 14		CCSRCH220J50
C 15		CCSRCH6R0D50
C 16		CCSRCH8R0D50
C 17		CKSRYB222K50
C 18		CKSRYB103K25
C 19		CKSRYB222K50
C 20		CKSRYB222K50
C 21		CEJA100M16
C 22		CCSRTH9R0D50
C 23		CCSRTH120J50
C 24		CCSRCH471J50
C 25		CKSRYB103K25
C 31		CKSRYB103K25
C 32		CKSQYB472K50
C 33		CCSRCH5R0C50
C 34		CKSQYB104K16
C 36		CCSRRH201J50
C 51		CKSRYB223K25
C 52		CKSRYB103K25
C 54		CCSRCH470J50
C 55		CKSQYB223K25
C 56		CKSQYB104K16
C 57		CKSRYB472K50
C 58		CEJA330M10
C 59		CKSRYB103K25
C 60		CKSRYB102K50
C 61		CCSRCH270J50
C 62		CKSRYB103K25
C 63		CEJAR22M50
C 101		CEJANP100M10
C 102		CKSRYB182K50
C 103		CKSRYB682K25
C 104		CEJA2R2M50
C 105		CKSRYB103K25
C 106		CCSRCH151J50
C 107		CKSRYB103K25
C 151		CKSRYB472K50
C 152		CKSQYB104K16
C 153		CEJA3R3M50
C 154		CKSQYB104K16
C 157		CEJA3R3M50
C 158		CKSYB474K16
C 159		CEJA220M6R3
C 160		CKSQYB104K16
C 161		CKSQYB104K16
C 162		CEJA3R3M50
C 163		CKSRYB102K50
C 170		CCSRCH100D50
C 201		CCSRCH471J50
C 202		CCSRCH100D50
C 203		CKSRYB332K50
C 204		CKSQYB473K16
C 205		CKSQYB473K16
C 206		CKSQYB104K16
C 207		CCSRCH560J50

=====Circuit Symbol and No.	Part Name	Part No.
C 209		CKSQYB104K16
C 211		CCSRCH101J50
C 212		CEJA470M6R3
C 213		CKSRYB103K25
C 216		CCSRCH101J50
C 217		CEJA1R5M50
C 219		CCSRCH471J50
C 220		CKSRYB103K25
C 230		CKSRYB103K25
C 231		CCSRCH330J50
C 232		CCSRCH150J50
C 233		CKSQYB104K16
C 234		CEJA330M10
C 235		CKSRYB332K50
C 236		CKSQYB473K16
C 237		CCSRCH120J50
C 239		CKSRYB472K50
C 240		CEJAR47M50
C 241		CKSQYB104K16
C 242		CEJAR47M50
C 243		CEJAR33M50
C 244		CKSQYB473K16
C 245		CKSRYB333K16
C 246		CKSQYB473K16
C 250		CCSRCH471J50

C Unit Number : CWM7022(KEH-P490/X1M/UC)
Unit Number : CWM7024(KEH-P4900/X1M/UC)
(KEH-P4950/X1M/ES)
Unit Name : Keyboard Unit

MISCELLANEOUS

IC	1901	IC	PD6278C
IC	1902	HIC Module(KEH-P490/X1M/UC)	RS-140
D	1901	Chip Diode	MA151WK
D	1902	Chip Diode	MA151WA
X	1901	Ceramic Resonator 4.97MHz	CSS1422
S	1901	Switch	CSG1041
S	1902	Push Switch	CSG1111
S	1903	Push Switch	CSG1111
S	1904	Push Switch	CSG1111
S	1905	Push Switch	CSG1111
S	1906	Push Switch	CSG1111
S	1907	Push Switch	CSG1111
S	1908	Push Switch	CSG1111
S	1909	Push Switch	CSG1111
S	1910	Push Switch	CSG1111
S	1911	Push Switch	CSG1111
S	1912	Push Switch	CSG1111
S	1913	Push Switch	CSG1111
S	1914	Switch	CSG1110
S	1915	Push Switch	CSG1111
S	1916	Push Switch	CSG1111
S	1917	Push Switch	CSG1111
S	1918	Switch	CSG1110
S	1919	Push Switch	CSG1111
S	1920	Switch	CSG1110
S	1921	Switch	CSG1041
S	1922	Push Switch	CSG1111
IL	1901	Lamp 14V 40mA	CEL1549
IL	1902	Lamp 14V 40mA	CEL1549
IL	1903	Lamp 14V 40mA	CEL1549
IL	1904	Lamp 14V 40mA	CEL1549
IL	1905	Lamp 14V 40mA	CEL1549
LCD	1901	LCD	CAW1563

=====Circuit Symbol and No.		===Part Name	Part No.
RESISTORS			
R	1901		RS1/10S222J
R	1902		RS1/10S222J
R	1903		RS1/10S472J
R	1904		RS1/10S473J
R	1905		RS1/10S473J
R	1906		RS1/10S473J
R	1907		RS1/10S473J
R	1908		RS1/10S473J
R	1909		RS1/10S473J
R	1910	(KEH-P4900/X1M/UC)	RS1/10S473J
		(KEH-P4950/X1M/ES)	RS1/10S473J
R	1911	(KEH-P490/X1M/UC)	RS1/10S121J
R	1912	(KEH-P490/X1M/UC)	RS1/10S2R2J
CAPACITORS			
C	1902		CKSQYB104K16
C	1903	(KEH-P490/X1M/UC)	CEAL100M16

D Unit Number : EWM1023
Unit Name : Deck Unit

MISCELLANEOUS			
IC	251	IC	CXA2559Q
IC	351	IC	PA2020A
D	352	Diode	1SS355
RESISTORS			
R	255		RS1/16S221J
R	256		RS1/16S221J
R	257		RS1/16S102J
R	258		RS1/16S102J
R	271		RS1/16S102J
R	272		RS1/16S102J
R	273		RS1/16S102J
R	274		RS1/16S102J
R	281		RS1/8S0R0J
R	282		RS1/8S0R0J
R	283		RS1/8S0R0J
R	284		RS1/8S0R0J
R	285		RS1/16S0R0J
R	286		RS1/16S0R0J
R	287		RS1/8S0R0J
R	290		RS1/8S0R0J
R	301		RS1/16S183J
R	302		RS1/16S163J
R	303		RS1/16S163J
R	304		RS1/16S163J
R	305		RS1/16S163J
R	323		RS1/8S0R0J
R	351		RS1/16S102J
R	352		RS1/16S102J
R	353		RS1/16S102J
R	354		RS1/16S102J
R	355		RS1/10S274J
R	362		RS1/8S301J
R	373		RS1/8S0R0J
R	374		RS1/8S0R0J
R	401		RS1/16S472J
R	402		RS1/16S183J
R	403		RS1/16S823J

=====Circuit Symbol and No.		===Part Name	Part No.
CAPACITORS			
C	251		CKSRYB331K50
C	252		CKSRYB331K50
C	253		CKSRYB331K50
C	254		CKSRYB331K50
C	255		CKSRYB103K50
C	256		CKSRYB103K50
C	272		CKSRYB104K16
C	273		CEJA220M16
C	301		CKSRYB104K16
C	302		CKSRYB104K16
C	313		CCSRCH101J50
C	351		CKSYB224K25
C	352		CKSRYB392K50
C	353		CKSRYB103K50
C	354		CKSRYB103K50
C	355		CKSYB104K50
C	356		CKSRYB103K50
C	401		CKSQYB334K16
C	402		CKSRYB392K50
C	403		CKSRYB683K16

E Unit Number :
Unit Name : Reel Sense PCB

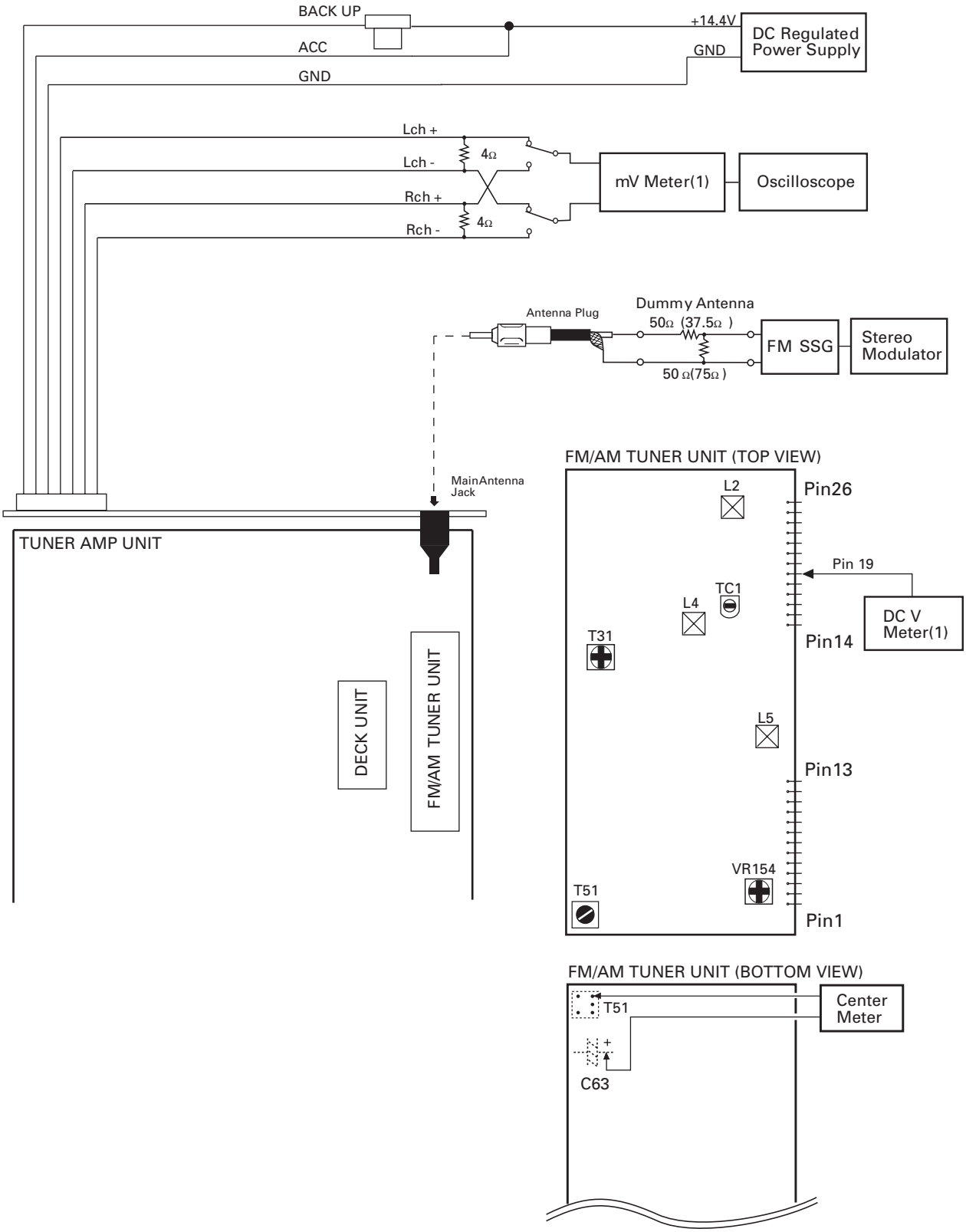
S	1	Switch(LOAD)	ESG1007
S	2	Switch(MODE)	ESG1007
EGN	1	Photo-reflector	EGN1004

Miscellaneous Parts List

M	1	Motor Unit(MAIN)	EXA1491
M	2	Motor Unit(SUB)	EXA1580
HD	1	Head Assy	EXA1506
		Fuse(10A)	CEK1136

6. ADJUSTMENT

● **Connection Diagram**



FM ADJUSTMENT (UC MODEL)

Modulation M:MONO MOD., 400Hz 30%(22.5kHz Dev.) or 400Hz 100%(75kHz Dev.)
S:STEREO MOD., 1kHz, L or R=30%(20.25kHz+7.5kHz Dev.)

NOTE:Before proceeding to further adjustments after switching power ON, let the tuner run for ten minutes to allow the circuits to stabilize.

	No.	FM SSG		Displayed	Adjustment	Adjustment Method
		Frequency(MHz)	Level(dBf)	Frequency(MHz)	Point	(Switch Position)
TUN Volt	1	•••••	•••••	107.9	L5	DC V Meter(1) : 6V
IF	2	98.1 M	60—100	98.1	T51	Center Meter : 0
ANT Coil	3	98.1 M	5	98.1	L2	mV Meter(1) : Maximum
RF Coil	4	98.1 M	5	98.1	L4	mV Meter(1) : Maximum
IFT	5	98.1 M	5	98.1	T31	mV Meter(1) : Maximum (STEREO MODE)
ARC	6	98.1 S	40	98.1	VR154	mV Meter(1) : Separation 5dB (STEREO MODE)

FM ADJUSTMENT (ES MODEL)

Modulation M:MONO MOD., 400Hz 30%(22.5kHz Dev.) or 400Hz 100%(75kHz Dev.)
S:STEREO MOD., 1kHz, L or R=30%(20.25kHz+7.5kHz Dev.)

NOTE:Before proceeding to further adjustments after switching power ON, let the tuner run for ten minutes to allow the circuits to stabilize.

	No.	FM SSG		Displayed	Adjustment	Adjustment Method
		Frequency(MHz)	Level(dBf)	Frequency(MHz)	Point	(Switch Position)
TUN Volt	1	•••••	•••••	108.0	L5	DC V Meter(1) : 6V
IF	2	98.1 M	60—100	98.1	T51	Center Meter : 0
ANT Coil	3	98.1 M	5	98.1	L2	mV Meter(1) : Maximum
RF Coil	4	98.1 M	5	98.1	L4	mV Meter(1) : Maximum
IFT	5	98.1 M	5	98.1	T31	mV Meter(1) : Maximum (STEREO MODE)
ARC	6	98.1 S	40	98.1	VR154	mV Meter(1) : Separation 5dB (STEREO MODE)

7. GENERAL INFORMATION

7.1 DISASSEMBLY

● **Remove the Case(not shown)**

1. Remove the two screws.
2. Remove the Case.

● **Remove the Cassette Mechanism Module (not shown)**

1. Remove the four screws.
2. Disconnect the connector, and then remove the Cassette Mechanism Module.

● **Remove the Panel Unit(Fig.1)**

1 Disengage the stopper at two locations indicated by arrow.

2 Remove the Panel Unit.

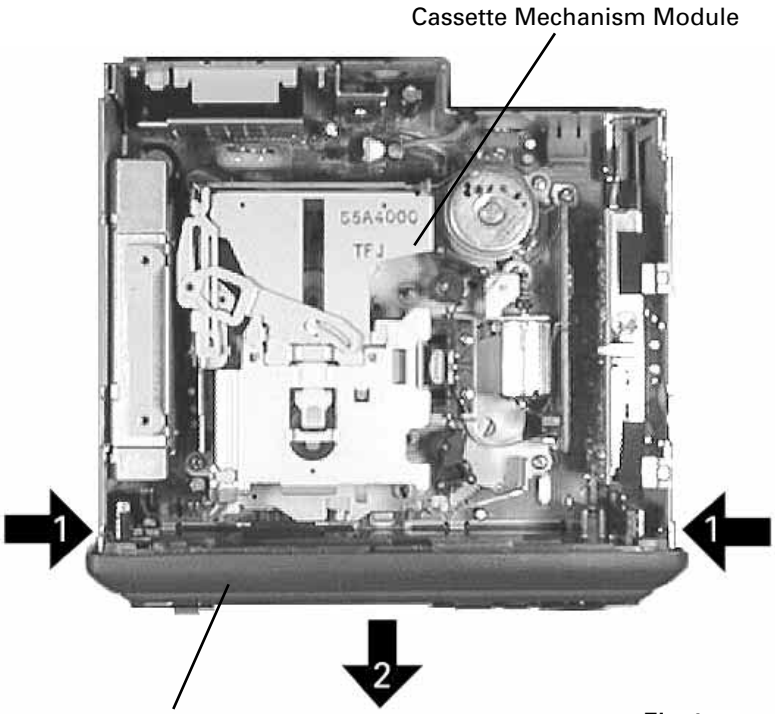


Fig.1

● **Remove the Tuner Amp Unit(Fig.2)**

1 Remove the two screws.

2 Remove the four screws.

3 Remove the screw.

4 Unbend the tabs at four locations indicated by arrow until straight.
Remove the Tuner Amp Unit.

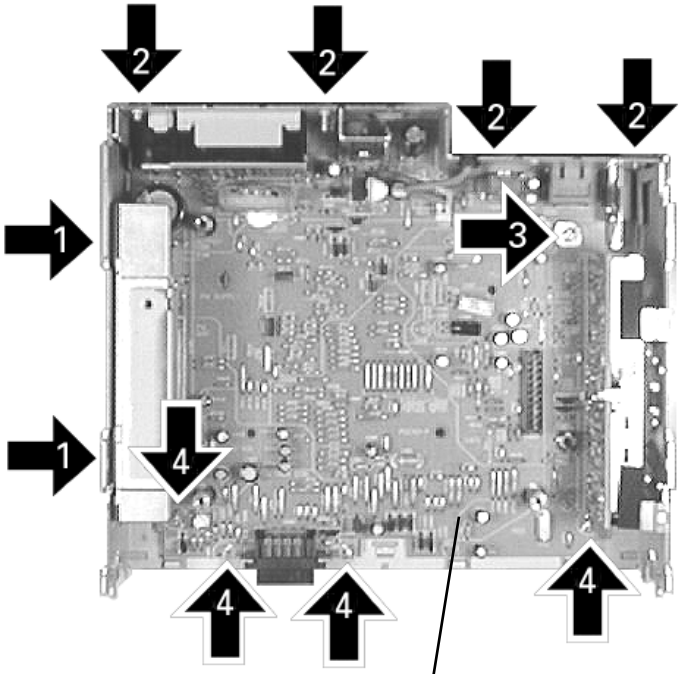
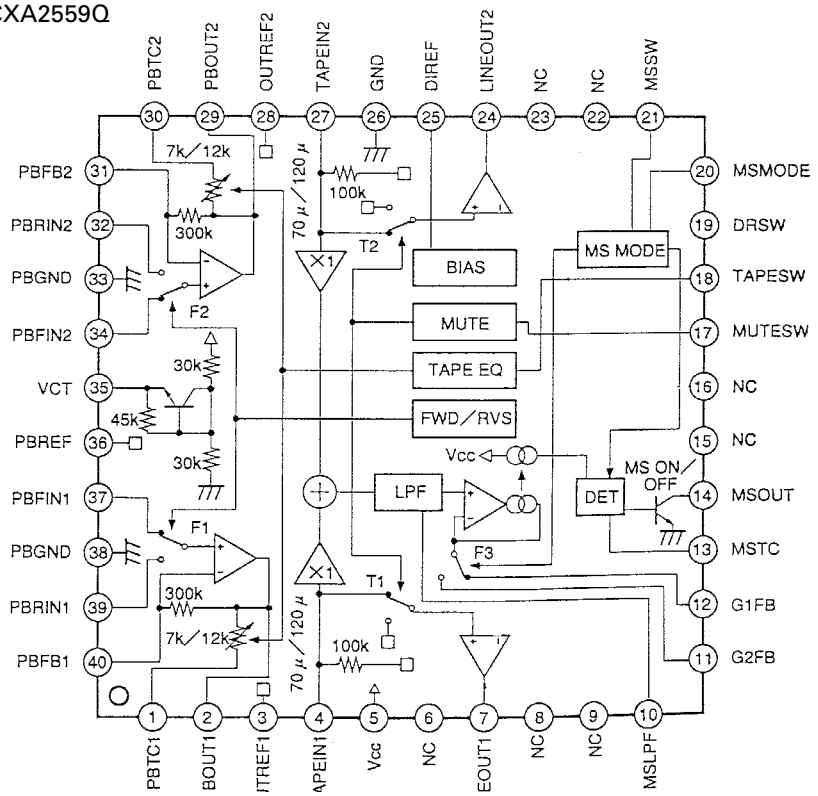


Fig.2

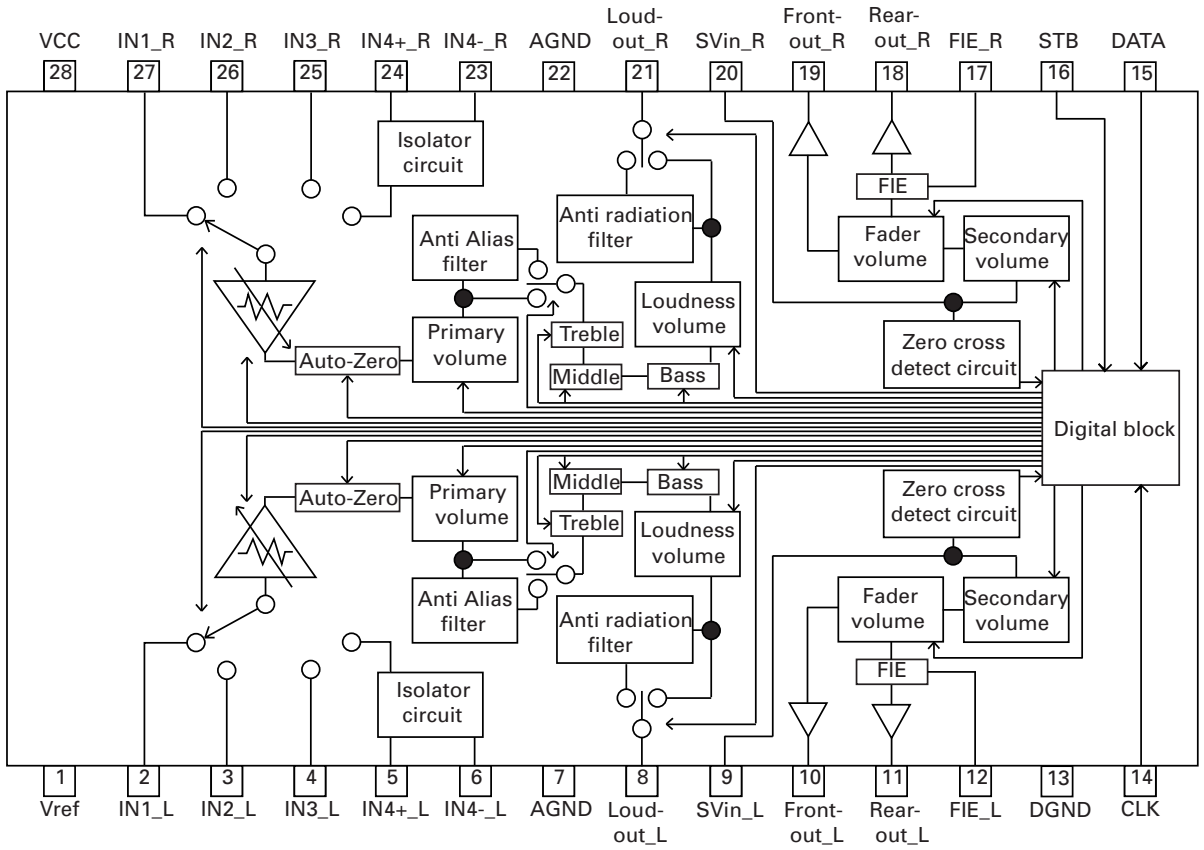
7.2 PARTS

7.2.1 IC

CXA2559Q



PML003AM

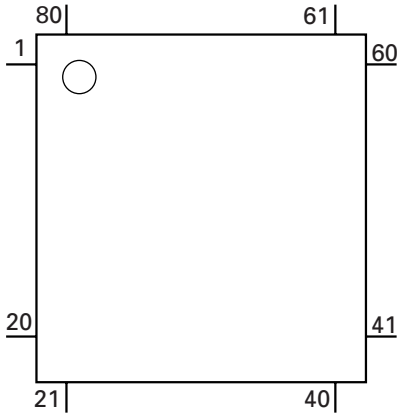


● **Pin Functions(PE5086A)**

Pin No.	Pin Name	I/O	Format	Function and Operation
1	ASENBO	O	C	Slave power supply control output
2	NC			Not used
3	ADPW	O	C	A/D converter power
4	AVSS			GND
5	$\overline{\text{SWVDD}}$	O	C	Grille power supply control output
6	$\overline{\text{ST}}$	I		FM stereo input
7	AVREF1			D/A converter standard voltage
8	KYDT	I		Grille MicroComputer data input
9	DPDT	O	C	Grille MicroComputer data output
10	NC			Not used
11	TUNPD1	I		PLL IC data input
12	TUNPD0	O	C	PLL IC data output
13	TUNPCK	O	C	PLL IC clock output
14	TUNPCE	O	C	PLL IC chip enable output
15	$\overline{\text{CURRRQ}}$	O	C	Tuner voltage FIX output
16	NC			Not used
17	TX	O	C	IP-BUS data output
18-12	NC			Not used
22	VST	O	C	Strobe pulse output for electronic volume
23	VCK	O	C	Clock output for electronic volume
24	VDT	O	C	Data output for electronic volume
25-28	NC			Not used
29	FM	O	C	FM power control output
30	AM	O	C	AM power control output
31	CM	O	C	Cassette mechanism capstan motor control output
32	NC			Not used
33	VSS			GND
34	SC2	O	C	Cassette mechanism sub motor control output
35	SC1	O	C	Cassette mechanism sub motor control output
36	MS	I		Cassette mechanism MS sense input
37	$\overline{\text{MCMUTE}}$	I		Cassette mechanism mute input
38	$\overline{\text{MTL}}$	I		Metal sense input
39	NC			Not used
40	$\overline{\text{N}}$/R	O	C	Normal reverse output
41	PLAY	O	C	Tape MS filter select output
42	$\overline{\text{LOADSW}}$	I		Tape loading input
43	POS	I		Cassette mechanism position sense input
44	RES	I		Cassette mechanism reverse end sense input
45	PEE	O	C	Beep tone output
46	NES	I		Cassette mechanism forward end sense input
47	NC			Not used
48	STBY	O	C	Stand-by output
49-52	NC			Not used
53	SD	I		SD input
54	$\overline{\text{MUTE}}$	O	C	Mute output
55	SYSPW	O	C	System power supply control output
56-59	NC			Not used
60	$\overline{\text{RESET}}$	I		Reset input
61	RX	I		IP-BUS data input
62	NC			Not used
63	$\overline{\text{DSENS}}$	I		Grille detach sense input
64	TELIN	I		Cellular mute input
65	$\overline{\text{ASENS}}$	I		ACC power sense input
66	$\overline{\text{BSENS}}$	I		Back up power sense input
67	CLKIN	I		Clock sense input
68	VDD			VDD
69	X2	O	C	Oscillator output
70	X1	I		Oscillator input

Pin No.	Pin Name	I/O	Format	Function and Operation
71	GND			GND
72	NC			Not used
73	TESTIN	I		Test program mode input
74	AVDD			A/D converter analog power supply (VDD)
75	AVREF0	I		A/D converter standard voltage input
76	SL	I		Signal level input
77,78	MODEL2,1	I		Model select input
79,80	NC			Not used

*PE5086A



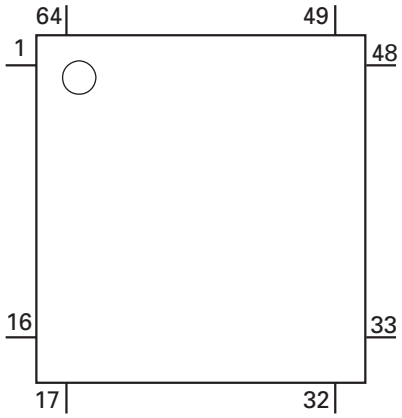
Format	Meaning
C	C MOS

IC's marked by* are MOS type.
Be careful in handling them because they are very liable to be damaged by electrostatic induction.

● **Pin Functions (PD6278C)**

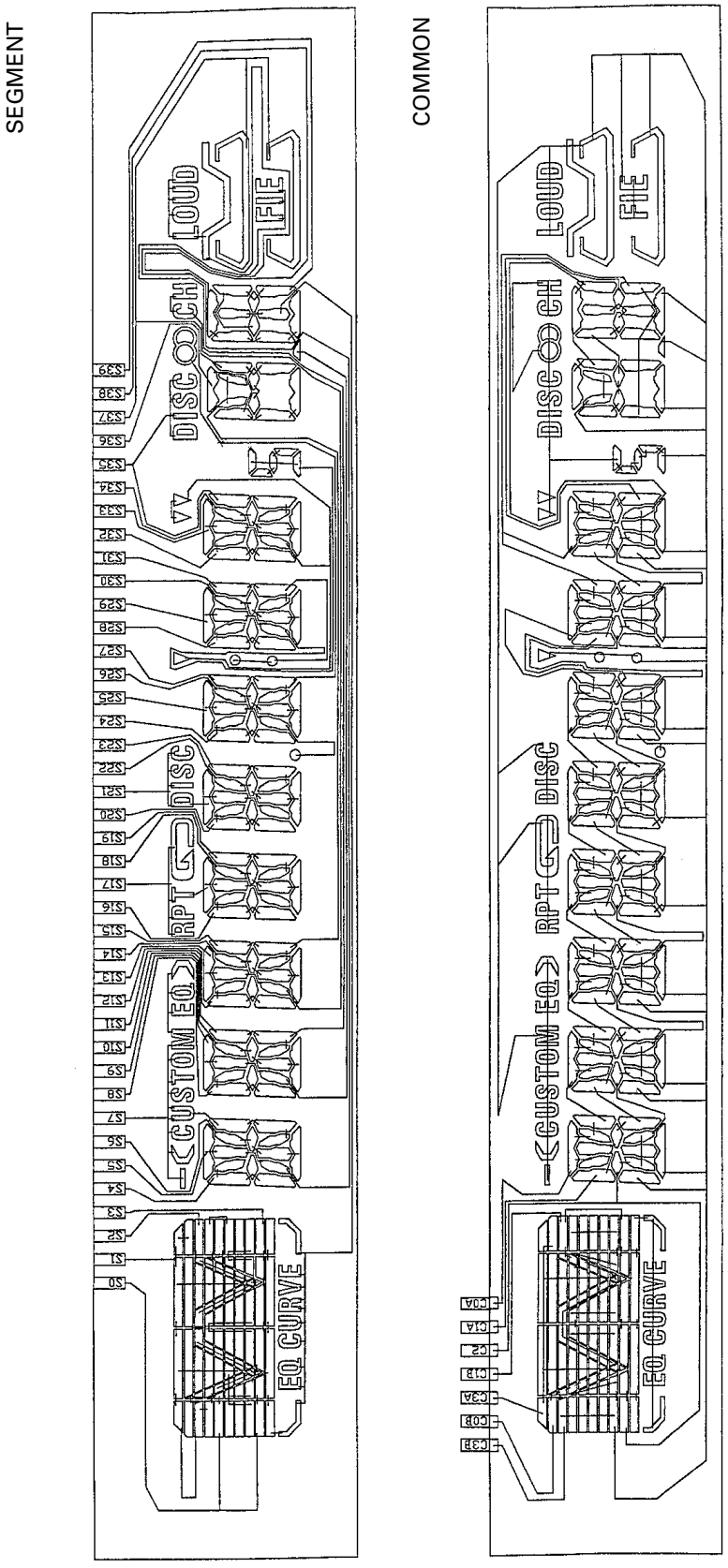
Pin No.	Pin Name	I/O	Function and Operation
1-5	SEG4-0	O	LCD segment output
6-9	COM3-0	O	LCD common output
10	V3		LCD drive power supply
11-14	KS4-1	O	Key strobe output
15,16	KD1,2	I	Key data input (analogue input)
17	REM	I	Remote control reception
18	RXD	I	System micro computer UART communication data input
19	$\overline{\text{RST}}$	I	System reset
20	TXD	O	System micro computer UART communication data output
21	MODA		GND
22	X0		Crystal oscillator connection pin
23	X1		Crystal oscillator connection pin
24	VSS		GND
25,26	KD3,4	I	Key data input
27,28	KS6,5	O	Key strobe output
29-55	SEG39-13	O	LLCD segment output
56	VCC		Power supply
57-64	SEG12-5	O	LCD segment output

*PD6278C



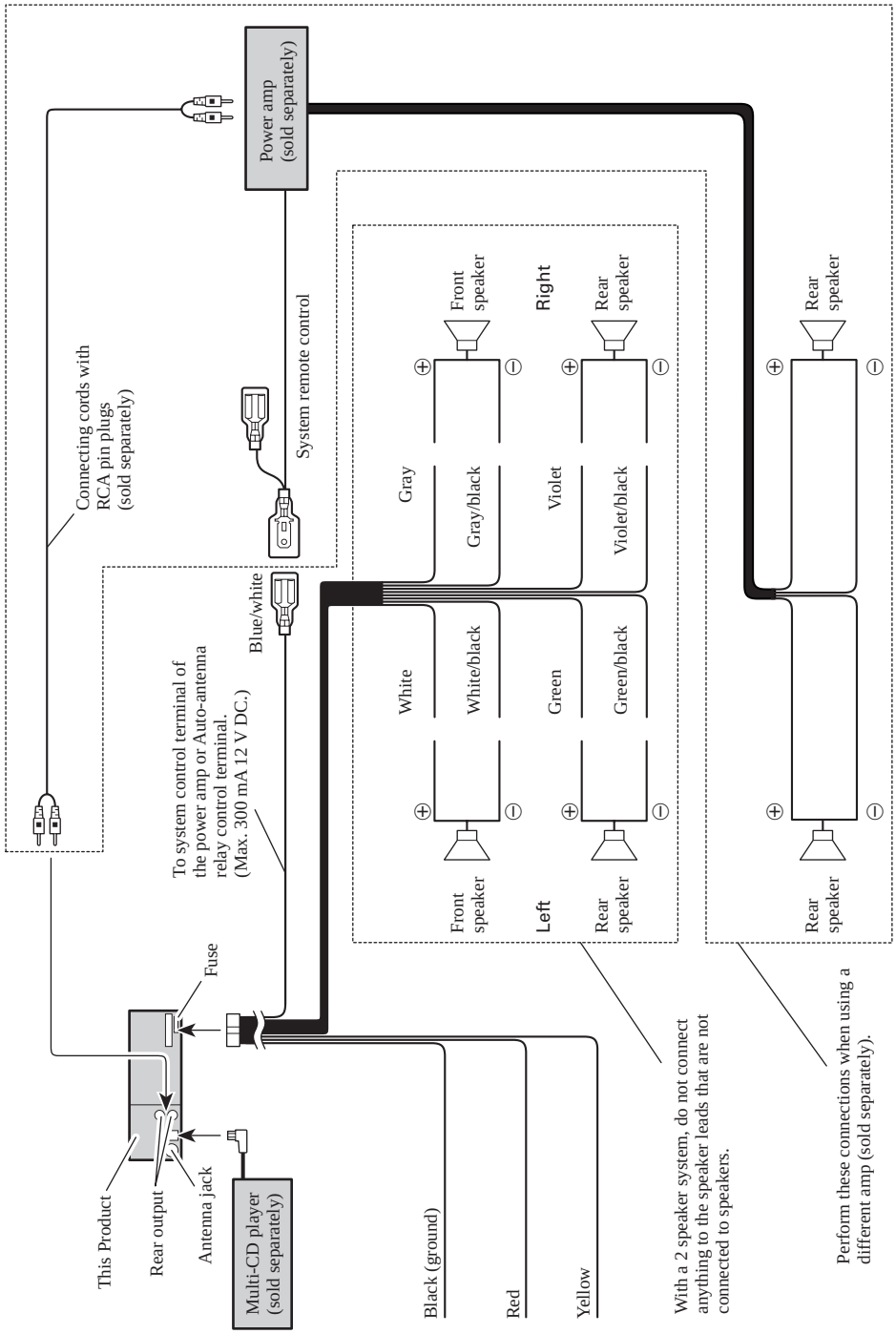
7.2.2 DISPLAY

● **CAW1563**

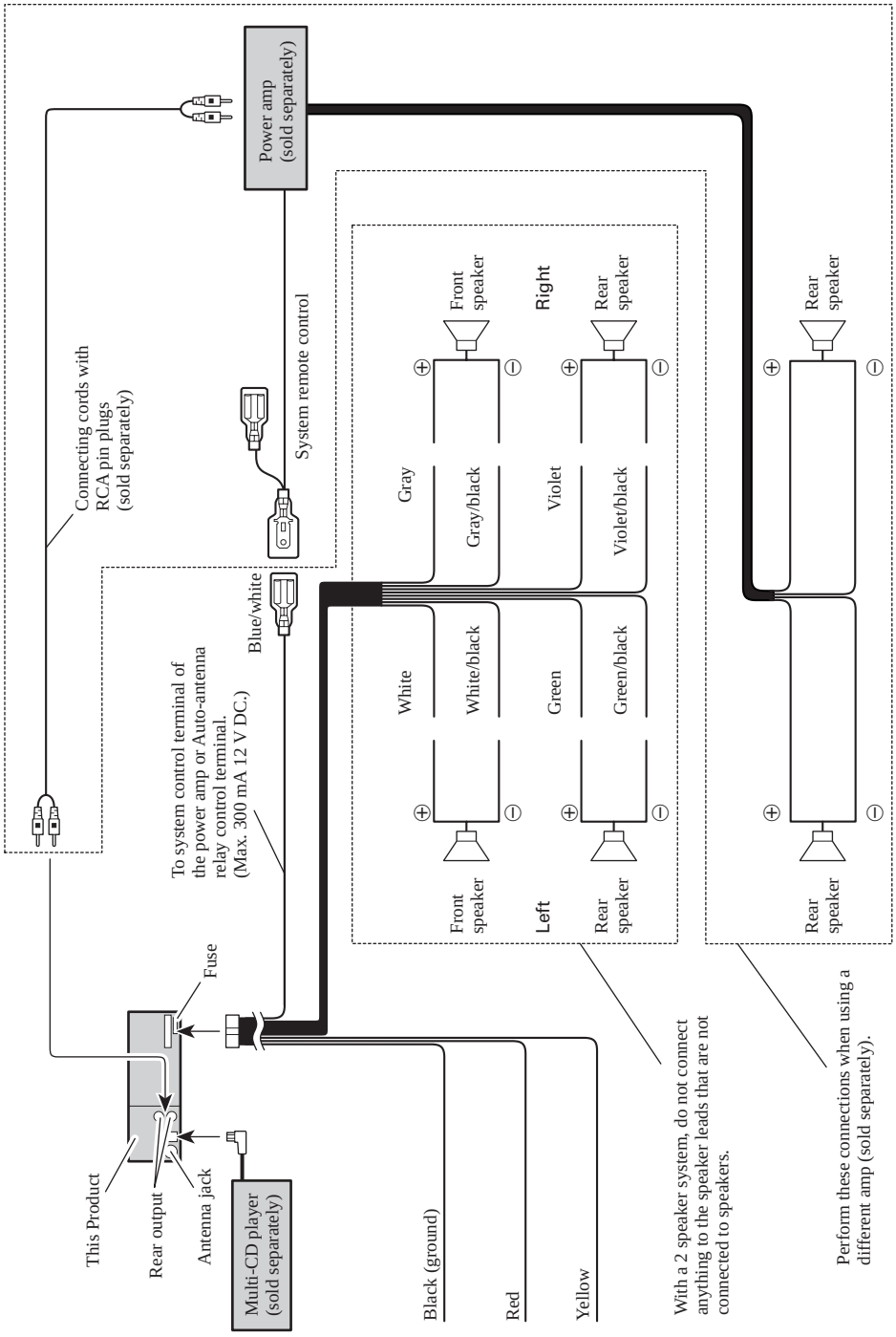


8. OPERATIONS AND SPECIFICATIONS

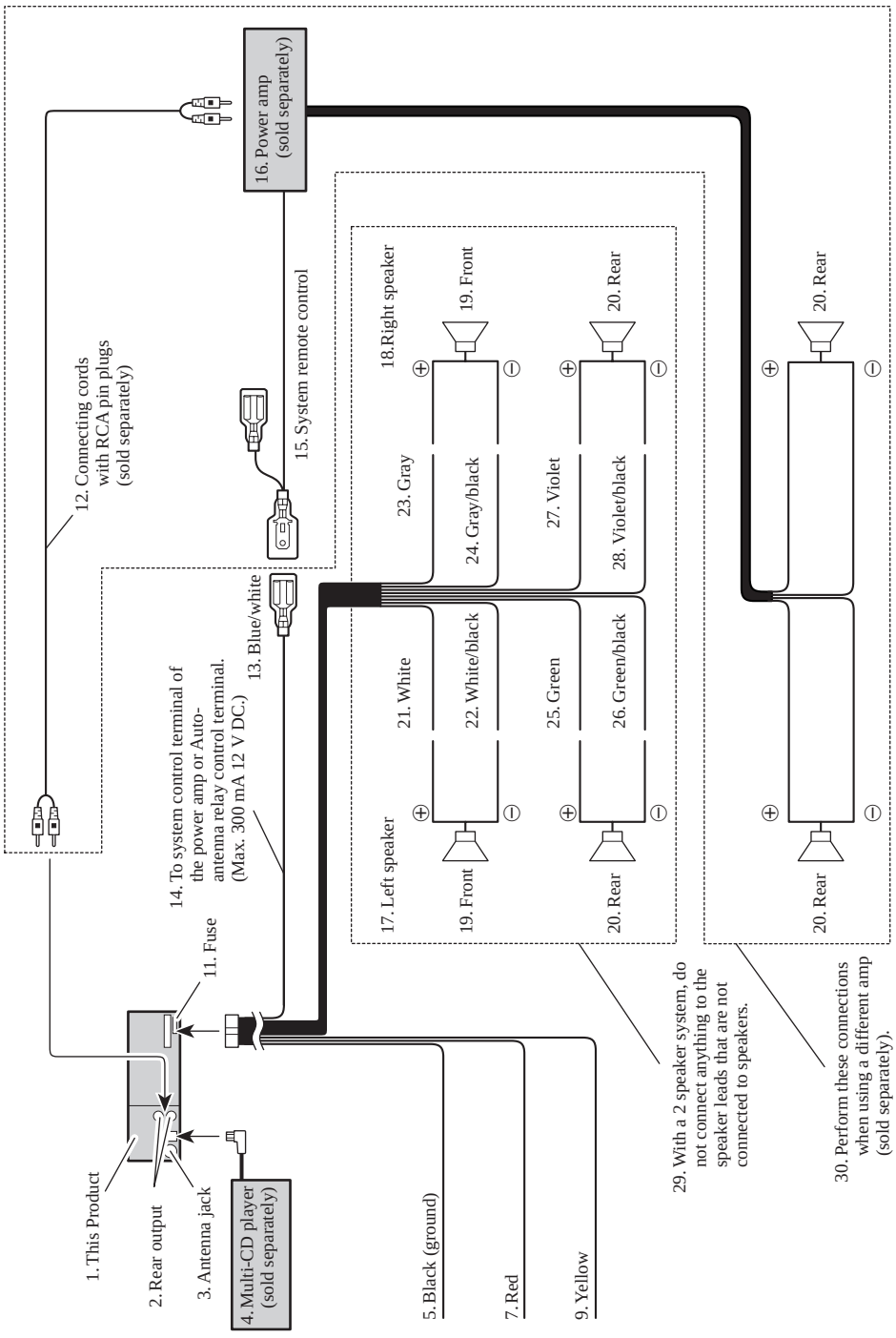
● Connection Diagram (KEH-P490/X1M/UC)


Power amp (sold separately)
Connecting cords with RCA pin plugs (sold separately)
System remote control
Blue/white
To system control terminal of the power amp or Auto-antenna relay control terminal. (Max. 300 mA 12 V DC.)
Fuse
This Product
Rear output
Antenna jack
Multi-CD player (sold separately)
Front speaker
Rear speaker
Left
Right
Gray
Gray/black
Violet
Violet/black
White
White/black
Green
Green/black
Black (ground)
Red
Yellow
To vehicle (metal) body.
To electric terminal controlled by ignition switch (12 V DC) ON/OFF.
To terminal always supplied with power regardless of ignition switch position.
With a 2 speaker system, do not connect anything to the speaker leads that are not connected to speakers.
Perform these connections when using a different amp (sold separately).

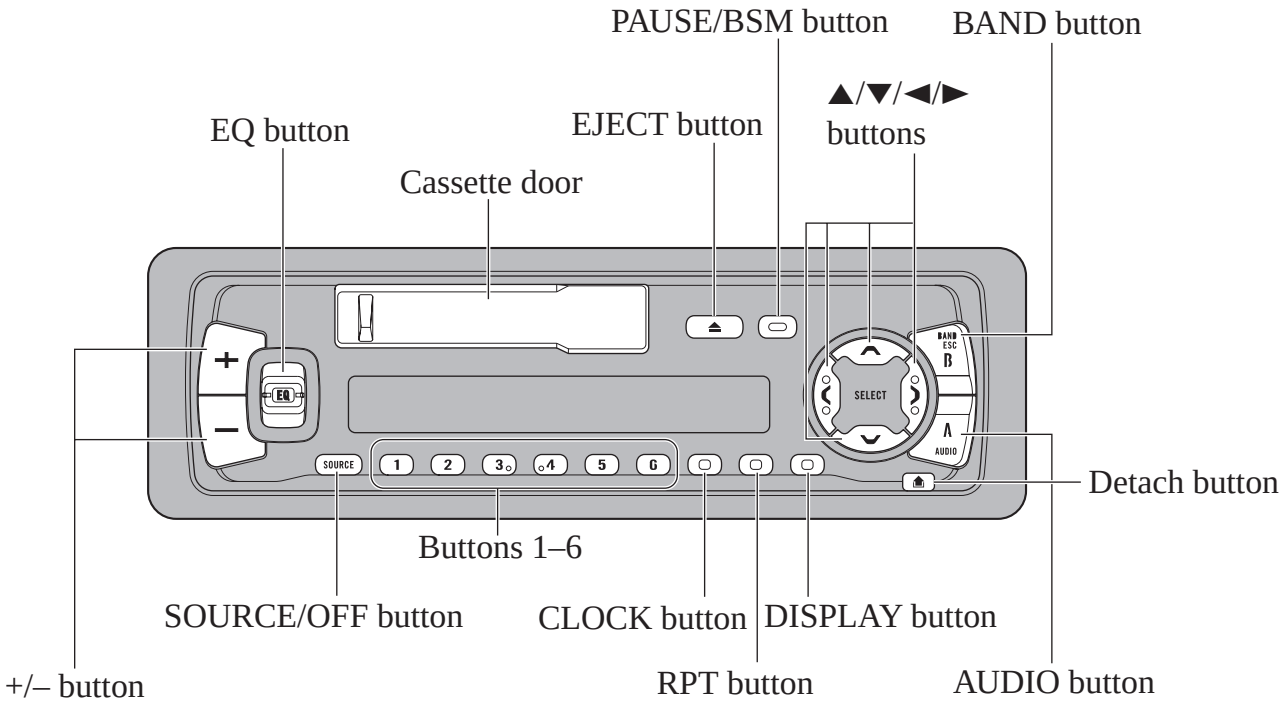
● Connection Diagram (KEH-P4900/X1M/UC)


Power amp (sold separately)
Connecting cords with RCA pin plugs (sold separately)
System remote control
Blue/white
To system control terminal of the power amp or Auto-antenna relay control terminal. (Max. 300 mA 12 V DC.)
Fuse
This Product
Rear output
Antenna jack
Multi-CD player (sold separately)
Front speaker
Rear speaker
Left
Right
Gray
Gray/black
Violet
Violet/black
White
White/black
Green
Green/black
Black (ground)
Red
Yellow
To vehicle (metal) body.
To electric terminal controlled by ignition switch (12 V DC) ON/OFF.
To terminal always supplied with power regardless of ignition switch position.
With a 2 speaker system, do not connect anything to the speaker leads that are not connected to speakers.
Perform these connections when using a different amp (sold separately).

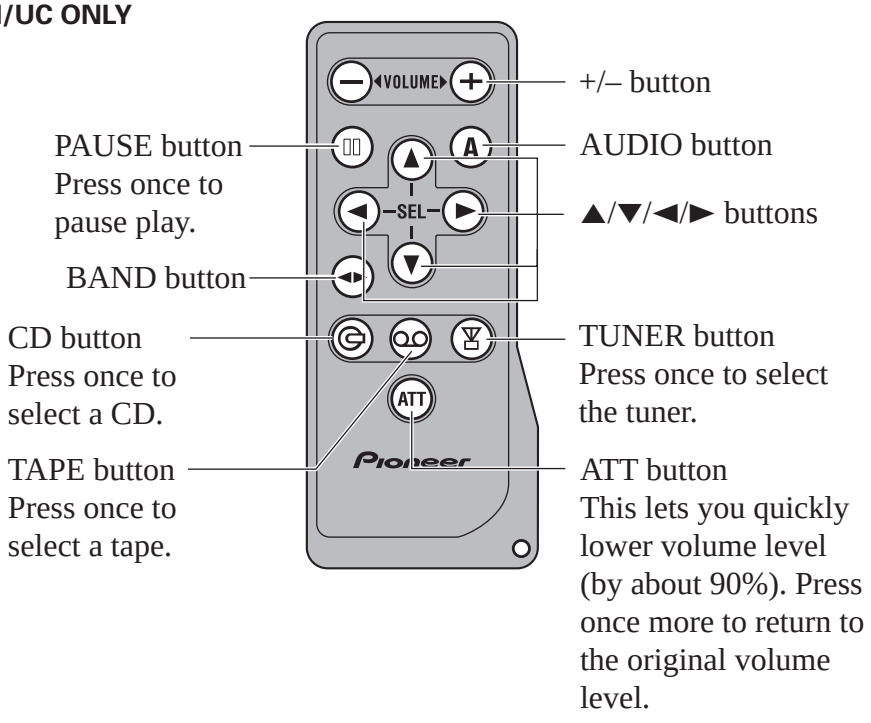
● Connection Diagram (KEH-P4950/X1M/ES)


16. Power amp (sold separately)
12. Connecting cords with RCA pin plugs (sold separately)
15. System remote control
18.Right speaker
19. Front
20. Rear
23. Gray
24. Gray/black
27. Violet
28. Violet/black
13. Blue/white
14. To system control terminal of the power amp or Auto-antenna relay control terminal. (Max. 300 mA 12 V DC.)
11. Fuse
17. Left speaker
21. White
22. White/black
25. Green
26. Green/black
1. This Product
2. Rear output
3. Antenna jack
4. Multi-CD player (sold separately)
5. Black (ground)
7. Red
9. Yellow
29. With a 2 speaker system, do not connect anything to the speaker leads that are not connected to speakers.
30. Perform these connections when using a different amp (sold separately).
6. To vehicle (metal) body.
8. To electric terminal controlled by ignition switch (12 V DC) ON/OFF.
10. To terminal always supplied with power regardless of ignition switch position.

8.1 OPERATIONS (KEH-P490/X1M/UC)



KEH-P490/X1M/UC ONLY

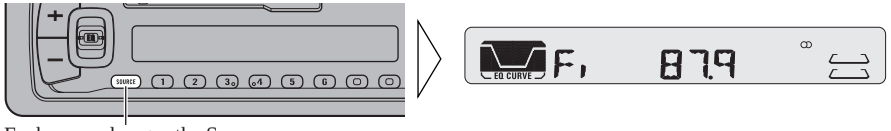

+/– button
PAUSE button
Press once to pause play.
AUDIO button
▲/▼/◄/► buttons
BAND button
CD button
Press once to select a CD.
TUNER button
Press once to select the tuner.
TAPE button
Press once to select a tape.
ATT button
This lets you quickly lower volume level (by about 90%). Press once more to return to the original volume level.

To Listen to Music

The following explains the initial operations required before you can listen to music.

Note:
- Loading a cassette in this product.

1. Select the desired source. (e.g. Tuner)



Each press changes the Source ...

■ Head Unit

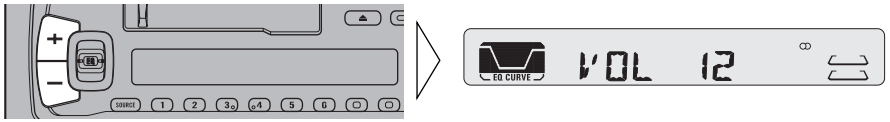
Each press of the SOURCE/OFF button selects the desired source in the following order:
CD player (one disc only) → Tuner → Tape → Multi-CD player → External Unit → AUX

■ Remote Controller

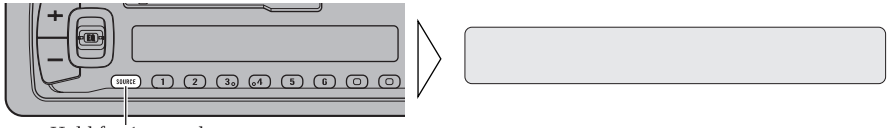
Each press of the button selects the desired source in the following order:
TUNER button : Tuner → OFF
TAPE button : Tape → AUX → OFF
CD button : CD player (one disc only) → Multi-CD player → OFF

Note:
- External Unit refers to a Pioneer product (such as one available in the future) that, although incompatible as a source, enables control of basic functions by this product. Only one External Unit can be controlled by this product.
- In the following cases, the sound source will not change:
  * When a product corresponding to each source is not connected to this product.
  * When no tape is set in this product.
  * When no magazine is set in the Multi-CD player.
  * When no disc is set in the CD player.
  * When the AUX (external input) is set to OFF.
- When this product's blue/white lead is connected to the car's Auto-antenna relay control terminal, the car's Auto-antenna extends when this product's source is switched ON. To retract the antenna, switch the source OFF.

2. Raise or lower the volume.



3. Turn the source OFF.



Hold for 1 second

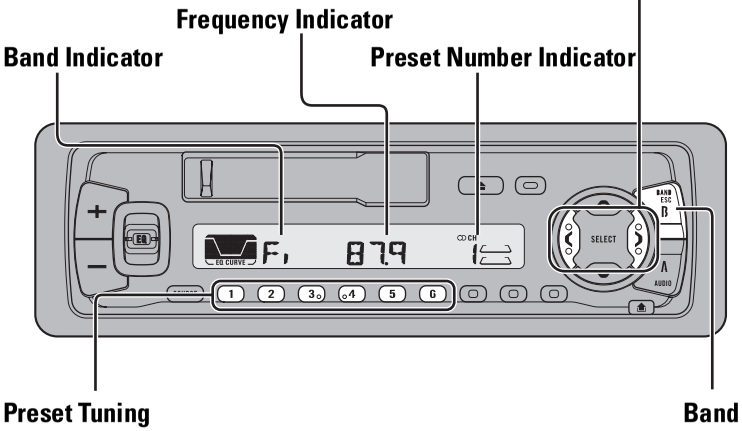
Basic Operation of Tuner

Manual and Seek Tuning

- **You can select the tuning method by changing the length of time you press the ◄/► button.**

Manual Tuning (step by step)	0.5 seconds or less
Seek Tuning	0.5 seconds or more

Note:
- If you continue pressing the button for longer than 0.5 seconds, you can skip broadcasting stations. Seek Tuning starts as soon as you release the button.
- Stereo indicator "◯◯" lights when a stereo station is selected.



- **You can memorize broadcast stations in buttons 1 through 6 for easy, one-touch station recall.**

Preset station recall	2 seconds or less
Broadcast station preset memory	2 seconds or more

Note:
- Up to 18 FM stations (6 in FI (FM1), FII (FM2) and FIII (FM3)) and 6 AM stations can be stored in memory.
- You can also use the ▲ or ▼ buttons to recall broadcast stations memorized in buttons 1 through 6.

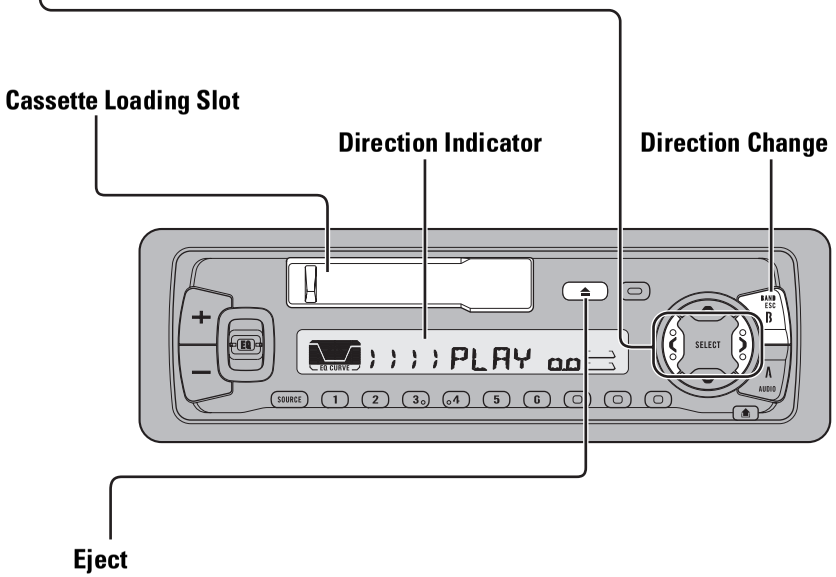
FI (FM1) → FII (FM2) → FIII (FM3) → AM

Basic Operation of Cassette Player

Fast Forward/Rewind and Music Search

- **Each press of the ► button selects Fast Forward or Forward-Music Search.**
  FF (Fast Forward) → F-MS (Forward-Music Search) → Normal Playback
- **Each press of the ◄ button selects Rewind or Rewind-Music Search.**
  REW (Rewind) → R-MS (Rewind-Music Search) → Normal Playback

Note:
- Fast Forward/Rewind and Music Search can be canceled by pressing the BAND button.



Note:
- The Tape function can be turned ON/OFF with the cassette tape remaining in this product.

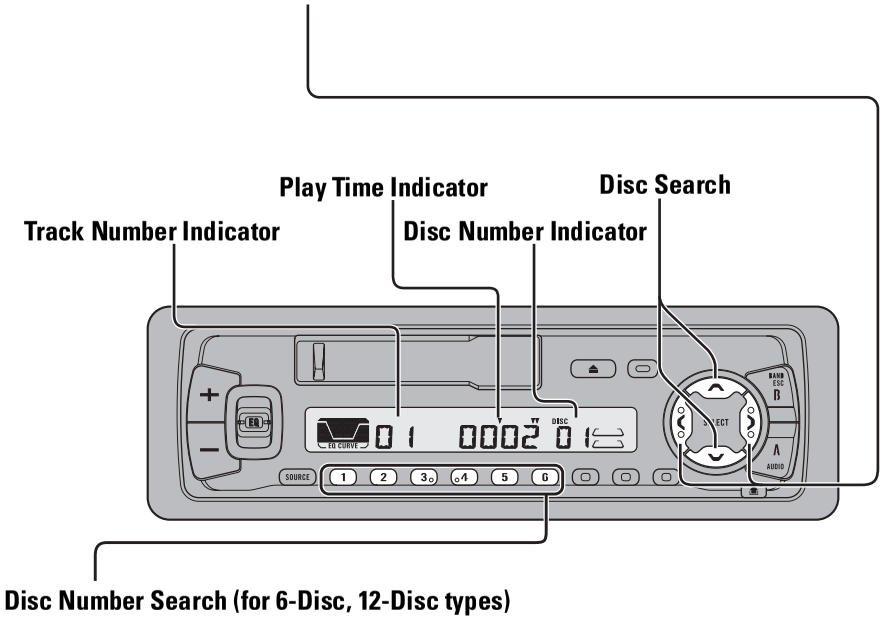
Basic Operation of Multi-CD Player

This product can control a Multi-CD player (sold separately).

Track Search and Fast Forward/Reverse

- **You can select between Track Search or Fast Forward/Reverse by pressing the ◄/► button for a different length of time.**

Track Search	0.5 seconds or less
Fast Forward/Reverse	Continue pressing



- **You can select discs directly with the 1 to 6 buttons. Just press the number corresponding to the disc you want to listen to.**

Note:
- When a 12-Disc Multi-CD Player is connected and you want to select disc 7 to 12, press the 1 to 6 buttons for 2 seconds or longer.

Note:
- The Multi-CD player may perform a preparatory operation, such as verifying the presence of a disc or reading disc information, when the power is turned ON or a new disc is selected for playback. “READY” is displayed.
- If the Multi-CD player cannot operate properly, an error message such as “ERROR-14” is displayed. Refer to the Multi-CD player owner’s manual.
- If there are no discs in the Multi-CD player magazine, “NO DISC” is displayed.

8.2 SPECIFICATIONS

General

Power source ..... 14.4 V DC (10.8 – 15.1 V allowable)
Grounding system ..... Negative type
Max. current consumption ..... 8.5 A
Dimensions (KEH-P490/X1M/UC, KEH-P4900/X1M/UC)
(DIN) (chassis) ..... 178 (W) × 50 (H) × 155 (D) mm
[7 (W) × 2 (H) × 6-1/8 (D) in]
(nose) ..... 188 (W) × 58 (H) × 20 (D) mm
[7-3/8 (W) × 2-1/4 (H) × 3/4 (D) in]
(D) (chassis) ..... 178 (W) × 50 (H) × 160 (D) mm
[7 (W) × 2 (H) × 6-1/4 (D) in]
(nose) ..... 170 (W) × 48 (H) × 15 (D) mm
[6-3/4 (W) × 1-7/8 (H) × 5/8 (D) in]
Weight ..... 1.2 kg (2.6 lbs)

Dimensions (KEH-P4950/X1M/ES)
(DIN) (chassis) ..... 178 (W) × 50 (H) × 155 (D) mm
(nose) ..... 188 (W) × 58 (H) × 20 (D) mm
(D) (chassis) ..... 178 (W) × 50 (H) × 160 (D) mm
(nose) ..... 170 (W) × 48 (H) × 15 (D) mm
Weight ..... 1.2 kg

Amplifier

Continuous power output is 17 W per channel min. into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.
Maximum power output ..... 40 W × 4
Load impedance ..... 4 Ω (4 – 8 Ω allowable)
Preout maximum output level/
output impedance ..... 2.2 V/1 kΩ
Equalizer (3 band equalizer)
(Low) ..... ±12 dB
(Mid) ..... ±12 dB
(High) ..... ±12 dB
Loudness contour
(Low) ..... +3.5 dB (100 Hz), +3 dB (10 kHz)
(Mid) ..... +10 dB (100 Hz), +6.5 dB (10 kHz)
(High) ..... +11 dB (100 Hz), +11 dB (10 kHz)
(volume: –30 dB)

Cassette player

Tape ..... Compact cassette tape (C-30 – C-90)
Tape speed ..... 4.76 cm/sec.(+0.14cm/sec.,-0.05cm/sec.)
Fast forward/rewinding time .... Approx. 100 sec. for C-60
Wow & flutter ..... 0.09% (WRMS)
Frequency response ..... 30 – 16,000 Hz (±3 dB)
Stereo separation ..... 45 dB
Signal-to-noise ratio..... 61 dB (IHF-A network)

FM tuner (KEH-P490/X1M/UC, KEH-P4900/X1M/UC)

Frequency range ..... 87.9 – 107.9 MHz
Usable sensitivity ..... 11 dBf
(1.0 µV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity .... 16 dBf (1.7 µV/75 Ω, mono)
Signal-to-noise ratio ..... 70 dB (IHF-A network)
Distortion ..... 0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response ..... 30 – 15,000 Hz (±3 dB)
Stereo separation ..... 40 dB (at 65 dBf, 1 kHz)
Selectivity ..... 70 dB (2ACA)
Three-signal intermodulation
(desired signal level) ..... 50 dBf
(two undesired signal level: 100 dBf)

FM tuner (KEH-P4950/X1M/ES)

Frequency range ..... 87.5 – 108 MHz
Usable sensitivity ..... 11 dBf
(1.0 µV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity .... 16 dBf (1.7 µV/75 Ω, mono)
Signal-to-noise ratio ..... 70 dB (IEC-A network)
Distortion ..... 0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response ..... 30 – 15,000 Hz (±3 dB)
Stereo separation ..... 40 dB (at 65 dBf, 1 kHz)

AM tuner (KEH-P490/X1M/UC, KEH-P4900/X1M/UC)

Frequency range ..... 530 – 1,710 kHz
Usable sensitivity ..... 18 µV (S/N: 20 dB)
Selectivity ..... 50 dB (±10 kHz)

AM tuner (KEH-P4950/X1M/ES)

Frequency range ..... 531 – 1,602 kHz (9 kHz)
530 – 1,710 kHz (10 kHz)
Usable sensitivity ..... 18 µV (S/N: 20 dB)
Selectivity ..... 50 dB (±9 kHz)
50 dB (±10 kHz)

Note:

- Specifications and the design are subject to possible modification without notice due to improvements.